

THE MOTOR AGE

THE AUTOMOBILE AUTHORITY.

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CHICAGO NOV. 21, 1901

Vol. V. No. 11

A Directory OF THE AUTOMOBILE TRADE

Will form part of the Christmas issue, ready about Dec. 18.

There will be no charge for insertion of names and addresses in classified lists. Makers are requested to send at once, a list of all the articles they make which are used by the maker or operator of an automobile.

ADVERTISING RATES:

There will be no advance in the cost of advertising space.

PRICE OF THE DIRECTORY:

The issue will be sent to regular subscribers without additional cost. To others, one dollar.

THE MOTOR AGE

MONON BUILDING
CHICAGO, ILL.



NEUSTADT-PERRY CO.

ST. LOUIS.

MANUFACTURERS

FOR THE TRADE
OF ALL KINDS OF

AUTOMOBILE PARTS

BOILERS
ENGINES
BURNERS
FITTINGS

AND ALL KINDS OF STEAM GOODS.

THE OFFICIAL

Automobile Blue Book

About 300 Pages, 4 Large Colored Maps, 4
Smaller Maps. Sold by Subscription Only

CONTAINS

Complete description of seventy routes adapted for automobile traveling and extending in a radius of 50 miles from New York, Boston, Philadelphia and Washington—with maps.

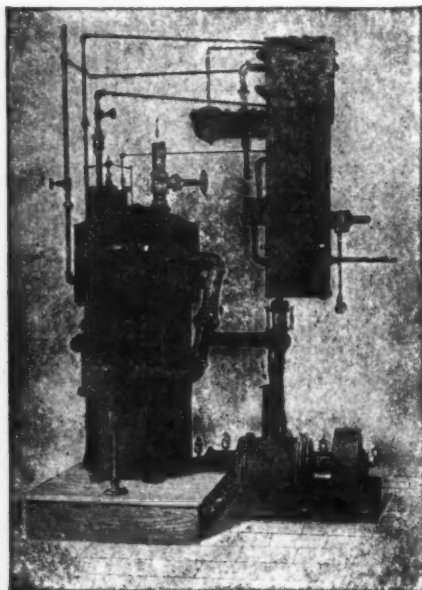
List of 500 automobile stations provided with repair and supply facilities, and telegraphically connected. Special code established.

(These stations have been established by the Official Automobile Blue Book Company, and their number will be gradually increased until about 1200 is reached in the territory extending 150 miles or more inland from south of Washington to north of Boston.) Maps specially prepared to show all the routes described and all the good roads in the entire territory, in blue.

Much other useful information too varied for mention.

Official Automobile Blue Book Company

22 Burling Slip :: New York City.



THE Garland

**AUTOMATIC GAS
GENERATING APPARATUS**

FOR AUTOMOBILE FACTORIES

**Any Capacity
Great or Small**

In use in steam laundries with small requirements and packing houses using 300 gallons of gasoline daily.

**Gas of required density without use
of supplementary air blast.
No condensation.
Vaporizes every particle of oil.**

We shall be pleased to figure on the requirements of automobile manufacturers.

GEO. D. GARLAND, - 43 S. Clinton St., - CHICAGO, ILL.

A Fluke

May cause a motor vehicle to make a good showing on a single occasion, but when an automobile stands up and wins five days in succession, it most certainly demonstrates the absence of accidental victory. And when four vehicles stand up and win five days in succession, covering each nearly one hundred miles in a day and being awarded the highest honors at the finish, the charge cannot be supported, in the minds of reasonable men, that the triumph was not brought about by intrinsic merit.

Four first awards were given four WHITE steam carriages for their work in the New York to Buffalo Endurance Contest, promoted by the Automobile Club of America, whose official report can be secured from us, free of charge, upon request. Get a copy and draw your own conclusions from its recitals.

White Sewing Machine Co.

(Auto Dept.)

CLEVELAND, OHIO.

...NOTE...

There will be a special exhibit of White steam carriages at the New York branch office of the White Sewing Machine Co., 22 Union Square, where all interested parties are cordially invited to call and inspect the vehicles.

...BRANCHES...

22 Union Square, New York, N.Y. 509 Tremont St., Boston, Mass. 212 Woodward Ave, Detroit, Mich.
300 Post Street, San Francisco, Cal. 609 Main Street, Buffalo, N. Y.

AN AUTOMOBILE WITHOUT A

Veeder Odometer

Is not complete. To keep track of the amount of fuel, water or power consumed it is absolutely essential.

Regular Odometer with Band Bracket Attached to Axle.



Price with bracket complete, \$3.50

Trip Odometer with Band Bracket.



Various
Other Styles
of Brackets
Furnished....

Price with bracket complete, \$5.00

Send for 12-Page Catalogue.

THE VEEDER MFG. CO., - - Hartford, Conn.

Makers of Odometers, Cyclometers, Counters, Fine Castings.

"Reading" Steam Carriage

1902 MODELS READY.

No blowing back. Highest winds absolutely defied. What our English friends think of them:

LONDON, E. C., England.. Oct. 30th, 1901.

Dear Sirs:

It may interest you to know the reasons of my purchasing a "Reading" steam carriage.

I had made up my mind some eighteen months ago to purchase the very best class of automobile and the very latest pattern, no matter whether steam or internal combustion drives. I had seen all the various types of motors at the Paris exhibition and all the different exhibitions in England, and came to the conclusion after examining internal combustion motors, that they were too noisy, wear and tear too heavy, and the excessive vibration most objectionable. It was only when I saw the American Steam Company's in use, as also the French Steam ones, that I decided to try steam, and after examining the different cars in the market, I came to the conclusion that the Reading was far and in a long way ahead of all other cars of the steam class.

I am pleased to say that my experience of the Reading car which I purchased from you, has fully borne out my expectations. You must quite understand that when I entered into this matter of investigating automobiles, I did so without favoring any class or any firm manufacturing, and I close without prejudice.

I shall always be pleased to recommend your cars to any of my friends, as I still think they are far in advance of anything yet produced. Yours truly,

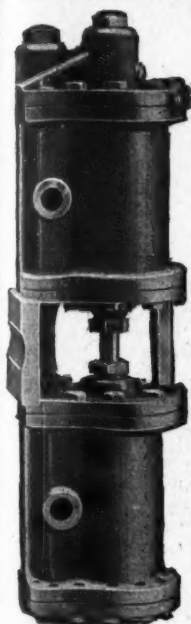
W. J. DAVY.

A. M. I. C. E. A. I. E. F. M. I. M. E.
Consulting Engineer.



Send for Catalogue and Book of Testimonials.

STEAM VEHICLE CO. OF AMERICA, 253 BROADWAY, NEW YORK

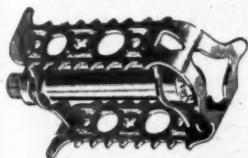


Victor Steam Air AND Steam Water Pumps

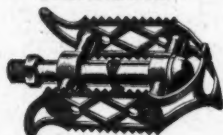
Space required in carriage 9 inches in height by 3 inches in width. Weight $4\frac{1}{2}$ pounds each. Steam pistons $1\frac{1}{2}$ inches in diameter by 2-inch stroke. Water pump piston 1 inch in diameter by 2-inch stroke. Capacity of water pump $1\frac{1}{2}$ gallons of water per minute against 200 pounds boiler pressure. Air pump piston $1\frac{1}{2}$ inches in diameter by 2-inch stroke. Capacity of air pump 80 pounds pressure on fuel tanks or tires. Pipe connections $\frac{1}{8}$ -inch.

OVERMAN AUTOMOBILE COMPANY,
Room 99, 81 Fulton Street, NEW YORK.

STAR

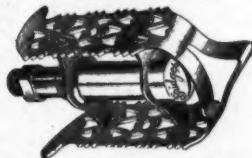


RECORD



1902
MODEL

BRIDGEPORT



PEDALS

NOW READY
Send for Quotations

The Bridgeport Gun Implement Co.,

313-317 BROADWAY,

NEW YORK



HENRI FOURNIER.

Holder of the World's One Mile Record, 1 Mile, 51 $\frac{1}{4}$ Seconds.

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WORLD'S RECORDS ON CONEY ISLAND

New York, Nov. 16.—A mile in 1m. 03s. by a Riker electric, driven by A. L. Riker seated tandem fashion in front of a companion.

Next, a mile in 56½ seconds by a 40 horsepower Winton driven by Albert C. Bostwick.

Next, a probably faster mile by a 40 horsepower Mors driven by Foxhall P. Keene. Time not taken but confirmed by a subsequent trial in 54½ seconds.

Next, a mile in 52 seconds by a 40 horsepower Mors driven by Henri Fournier.

Next, a mile in 51½ seconds by a 40 horsepower Mors driven by Henri Fournier.

Such was the succession of world's records for all kinds of automobiles made on a mile straightaway course on the Coney Island Boulevard this afternoon, supplanting the previous world's record of 1:06 2-5 made by a 40-horsepower Winton driven by Alexander Winton at Detroit, Oct. 24, 1901.

But this was not all the record breaking and record establishing done. There were new records made or set for every class of vehicle recognized by the racing rules of the Automobile Club of America under a classification based on motive power solely, so far as steam and electric carriages go, and on weight for gasoline carriages.

S. T. Davis, Jr., in a 4½-horsepower Locomobile, cut the record of 1:39 for steam vehicles made by T. Griffin at Chicago, Sept. 18, 1900, to 1:15. (Attention is again called to the fact that W. L. Hibbard twice made a mile in 1:15 at Joliet, Ill., supplanting Griffin's record.—Ed.)

Jaques Longueux, in a 10-horsepower De Dion motorette, established a record of 1:27 3-5 for gasoline vehicles under 1000 pounds.

Percy Owen, in a 12-horsepower Winton, established a record of 1:53 3-5 for gasoline vehicles between 1000 and 2000 pounds.

A. L. Riker's 1:03 supplants his own previous record of 1:46 for electric vehicles, made at Guttenburg, N. J., Aug. 18, 1900.

Henri Fournier's 51 4-5 sec. supplants

Alexander Winton's previous record of 1:06 2-5 for gasoline vehicles over 2000 pounds, made at Detroit, Oct. 24, 1901.

Robert Atkinson, on a 4-horsepower Orient bicycle; and Kenneth A. Skinner, on a 11-horsepower tricycle, and a De Dion employee on an 8-horsepower tricycle went over the course, but their times were not taken.

Such were the marvelous results of the straightaway mile trials promoted by the Long Island Automobile Club today. It was hoped and expected thereby that automobile speed history would be made and that world's records hereafter would have a new foundation and practically new starting point from the straightaway mile trials of Nov. 16, 1901, on the Coney Island boulevard. How gloriously these hopes and expectations were realized the figures herein set forth tell, and it seems almost like trying to paint the lily to add a word of comment to the story the records themselves herald.

Making Automobile History

Twenty thousand spectators lined the course, despite a cold November wind that swept across at right angles from the west and in spite of the tens of thousands of sport followers that were drawn to the football games at Manhattan Field and New Haven. The glorious afternoon's sport vouchsafed them through the liberal mindedness of Mr. Brower and his fellow park commissioners, in giving over the Ocean Parkway to the automobilists for a speed trial just as they annually bestow a similar boon on the bicycle racers, will doubtless lead to other like privileges in the future, which will make the Coney Island boulevard as famous in automobile annals as the Derby in horse history and the Irvington-Milburn course in cycle racing chronicles.

Example for Other Cities

But there are other mile straightaway stretches in America. Chicago has them, so has Philadelphia and so has Boston. It remains to be seen how soon and to what extent Brooklyn's recognition and encouragement of motor vehicle speeding will be fol-

AUTOMOBILE RACING.

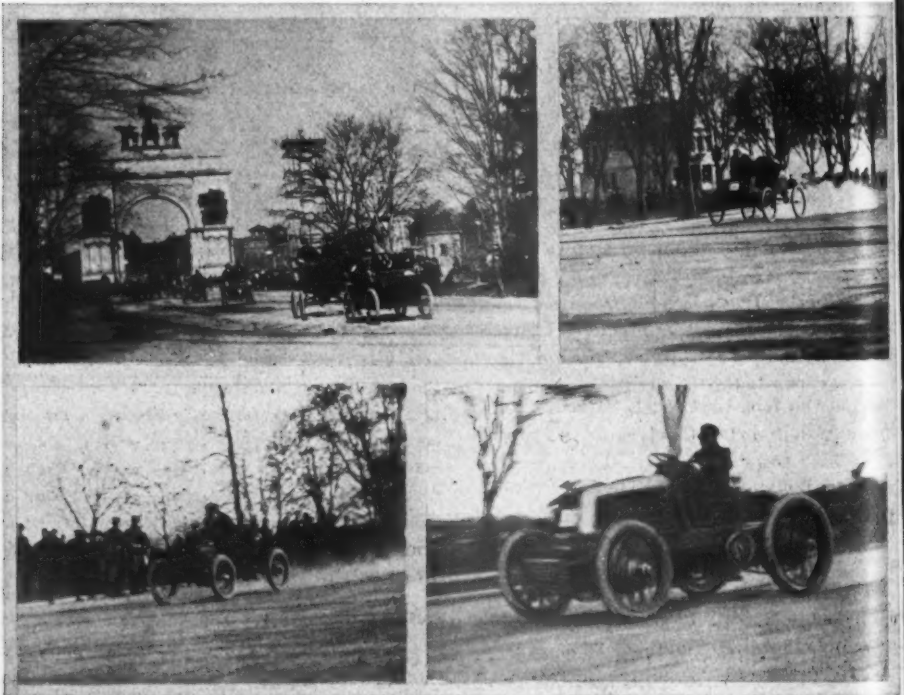
lowed in other cities. Other automobile clubs should not be long behind Brooklyn's hustling little organization in taking measures to make even faster motor speeding world's records possible. Surely the straightaway mile can be put in the forties and records for steam, electric and light gasoline vehicles and for motor bicycles and tricycles can be brought nearer to mile-a-minute figures than they are.

Everything that foresight could suggest to make the affair a success was done by A. R. Pardington and Frank G. Webb, who, to newspaper men, seemed to be the most active members of the committee; and by Park Commissioner Brower. The latter did his part notably well. A new top dressing was laid on the macadam of the course, which was from King's Highway to the Beverley Road, with all the big vehicles needed for headway and finishing at either end in addition. The mile was a splendid stretch of hard rolled surface with but one slight rise at the grand stand a quarter of a mile on the way. This was policed the

entire length and kept clear the whole way exclusively for the racers and one or two messenger automobiles for the officials. The east drive was set aside for horse-drawn vehicles and the west drive for automobiles, the spectators having the cycle paths and the curb to themselves.

Difficulties of Timing

Of course the most important feature of the whole affair was the arrangements for the timing and in this one vital particular there seemed at first great danger of the trials going in the air and leaving the whole scheme a gigantic fizzle. It had been arranged that a telegraph circuit should be established between the starting and finishing points. A rubber hose containing a copper wire and a copper plate was laid across the starting line it being intended that the wheels passing over it should thus communicate automatically a "click" to the timers at the start and at the finish. This elaborate arrangement, however, went wrong, for "the best laid plans of mice and



SCENES AT THE RECORD TRIALS.

Parade Entering Prospect Park.
One of the Light-Weight Class.

Davis Approaching the Line.
Keene at the Half Mile.

AUTOMOBILE RACING.

men gang aft aglee." Careless and irrelevant pedestrians trampled it under foot and put up a delirium of clicks at either end.

The expert veteran watch holders, S. D. Lee, Robert Stoll and Charles Dieges, with J. E. Savell, B. E. Cornwell and Fred Burlew also snapping times to make assurance doubly sure, were gathered with the newspaper boys at the finish line at 1 o'clock, the hour set for the start. One hour, two hours passed with no word from the starting point and no sign of a racing vehicle.

Several Useless Trials

It was nearly 3 o'clock when the dust of an approaching steamer was seen. It flashed over the line and its driver, Thomas R. DeWitt, returned for its time. "No time taken," was the answer and the crowd laughed. The timers had received no warning by the operator. J. M. Fiske and S. T. Davis, Jr., next rushed by and the provoking "no time taken" greeted them also. Again the crowd laughed and the newspaper men sadly sharpened their pencils to record the greatest fizzle in automobile racing history.

Then into the breach and a waiting automobile jumped Fred Burns, the announcer and fortunately master of ceremonies, and dashed down to the starting line.

"All right now, boys," he reported on his return. "The operator at the start will flash a click and you timers will catch it." The timers gathered about the finish operator for a few minutes.

"We got a click," they finally smilingly reported.

World's Record for Electrics

In less than a minute a low frame supported on four wheels came into view and quickly flashed noiselessly by.

"One three," cried the timers.

"What was it?" asked every one.

It had passed so quickly one only saw two men seated tandem fashion on its floor, the front one steering with a bicycle handle arrangement.

"Why, that must be Riker, you chumps," said Burns.

The strange skeleton craft returned to the finish line. It was Riker and his mate, seated on a nest of batteries, who had established a world's record of 1:03 for automobiles of all classes.

Next S. T. Davis, Jr., whirled by on his well known heavily boilered racing Locomobile. A new world's record of 1:15 for steam vehicles had been established. Thomas D. Dewitt, in 1:33 1-5, on a Locomobile; W. T. Stewart, similarly mounted, in 1:56 4-5, and B. L. Wright, on a Grout, in 1:57 1-5, were next timed.

It was now getting late. The crowd was eager for the big fellows and bewailed the fact of the two light gasoline classes intervening.

"Here comes Bostwick!" suddenly cried the newspaper men, who recognized the vehicle at once, having seen it at the starting point stripped actually to wheels, platform, machinery and a single seat.

If Riker's electric flash had astonished them, Bostwick's whirlwind speed fairly bewildered them. One has to have a bolt like that shoot by him to appreciate what a mile a minute means.

Bostwick's Desperate Risk

"My God!" was on a hundred lips as he passed the post; for 200 yards ahead a train was seen crossing the road. The young millionaire, a mere boy, by the way, in appearance, did not lose his nerve, but coolly shut off his power and swung safely to the left.

A cheer greeted him on his return to the line and a bigger one when 56 2-5 sec. was announced.

He was the first automobilist in the world to score under a minute for an official mile.

Missed Keene's Time

"How long will he hold it?" was the involuntary question. He had put Riker's 1:03 into the "has been" class, just as Fournier had wiped out his world's records at 40 minutes intervals that beautiful October afternoon at the Empire trotting track and Fournier was to follow later.

"Here comes another big fellow!" was the next cry and in an instant "Foxy" Keene thundered by. There was a mixup on the timing and the timers refused to announce such ridiculous figures as 1:21 2-5. There had evidently been some mistake about the click, whereby perhaps the popular young sportsman millionaire had been robbed of the transitory glory of a world's record for 10 minutes or so.

"It's Fournier! Here comes Fournier!"

AUTOMOBILE RACING.

Sure enough it was the French champion in his ponderous partly stripped car, leaning far back that the wind might glance from him instead of going against a horizontal body or into the angle of a body leaning forward. A tip for racing chauffeurs, for these little points economize the fractions of seconds that cut world's records.

"Fifty-two—world's record," announced Burns. Again the Frenchman had put the young American's figures out of business.

"I can beat that," said Fournier, when the MOTOR AGE man told him his time, and after a minute's tinkering with Mr. Keene's machine the Morse pair dashed down the course again for another trial. Spectators down the road said they were having a warm race of it as they passed the grand stand. George Banker had told the writer that Fournier was sure he could go under 50 sec. He could surely were that little

rise at the first quarter of a mile out of the way.

Foxhall Keene next passed on his second trial. This time there was no tangle in the time and 54 2-5 sec. was announced as the figure. Had he been snapped for this in his first trial 10 minutes before he, too, would have held a transitory world's record for a brief quarter of an hour.

Louis Charley, driving Harry Payne Whitney's 35-horsepower Daimler, next scored in 1:08, with tonneau body and entire equipment on; and on a second attempt, 1:08 4-5, a great performance for a touring car complete.

Nothing seemed impossible now and Fournier's 51 4-5 sec. on his second trial failed of the enthusiasm of the 52 sec. of his first trial; for the crowd was not standing for mere fractional second cuts of world's records now, yet 51 4-5 seconds to the mile

STRAIGHTAWAY MILE TIMES ON CONEY ISLAND BOULEVARD, NOV. 16, 1901.

CLASS 1.—MOTOR BICYCLES.

CONTESTANTS.	Motor and Make.	H. P.	Time.
Robert Atkinson.....	Orient.....	4	Not taken.

CLASS 2.—MOTOR TRICYCLES.

K. A. Skinner.....	De Dion.....	11	Not taken.
De Dion-Bouton Motorette Co.....	De Dion.....	8	Not taken.

CLASS 3.—GASOLINE VEHICLES UNDER 1000 POUNDS.

1. Jacquez Longuez.....	De Dion Motorette.....	10	1m. 27 ³ / ₅ s.
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CLASS 4.—GASOLINE VEHICLES BETWEEN 1000 AND 2000 POUNDS.

1. Percy Owen.....	Winton.....	12	1m. 53 ³ / ₅ s.
2. C. I. Stralem.....	Panhard.....	7	1m. 57 ³ / ₅ s.
3. Lloyd Warren.....	Panhard.....	12	Not taken.

CLASS 5.—GASOLINE VEHICLES OVER 2000 POUNDS.

1. Henri Fournier.....	Mors.....	40	51 ⁴ / ₅ s.
2. Foxhall P. Keene.....	Mors.....	40	54 ² / ₅ s.
3. Albert C. Bostwick.....	Winton.....	40	56 ³ / ₅ s.
4. Louis Charley.....	Daimler.....	35	1m. 8s.
5. J. Wesley Blair.....	Panhard.....	16	1m. 43s.

CLASS 6.—STEAM VEHICLES.

1. S. T. Davis, Jr.....	Locomobile.....	4 ¹ / ₂	1m. 15s.
2. T. D. Dewitt.....	Locomobile.....	4 ³ / ₅	1m. 33 ³ / ₅ s.
3. B. L. Wright.....	Grout.....	4	1m. 56 ³ / ₅ s.
4. W. J. Stewart.....	Locomobile.....	3 ⁴ / ₅	1m. 57 ³ / ₅ s.

CLASS 7.—ELECTRIC VEHICLES.

1. A. L. Riker.....	Riker.....	1m. 3s.
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AUTOMOBILE RACING.

means but a small fraction of a mile less than 70 miles an hour. Sixty-seven miles an hour was his best sustained time in the Paris-Berlin race with 47 miles as an average.

Other Great Rides

Three men, Fournier, Keene and Bostwick, had beaten Charley Murphy's 57 4-5 sec. on a bicycle behind a railroad train and had ridden faster than man had ever gone before on a machine not running on rails. Charlie Murphy, in a cycle cop's uniform, rode a wheel along the cycle path and saw them do it and the heart of Murphy was sadder than ever that the chicken-hearted authorities, with foolish regard for his own record-breaking life, would not let him ride his bicycle across the string piece of the new East River bridge.

Other trials, meritorious in themselves, but suffering sadly by comparison with those of the big fellows, followed. They are set forth in the table of results.

It is a pity that the bicycle and tricycle

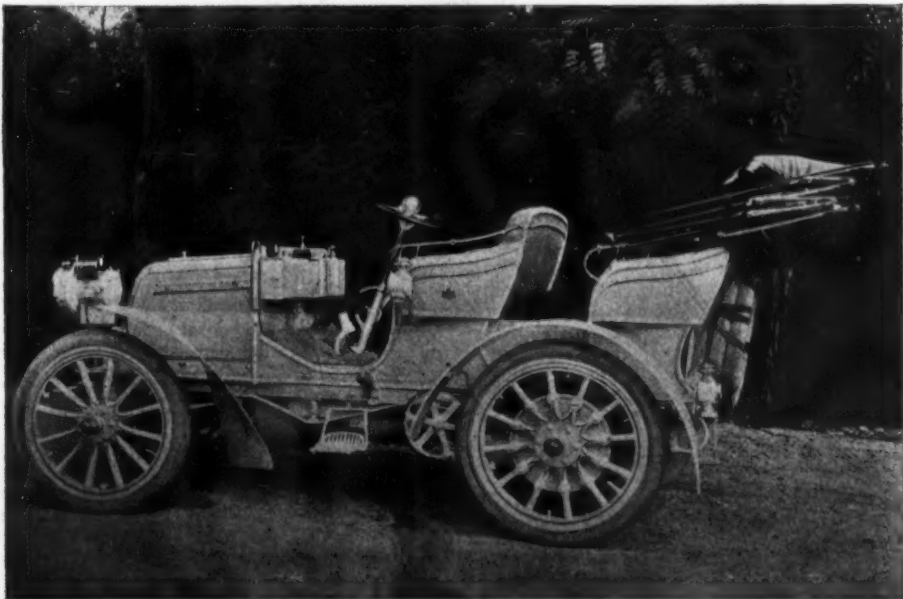
attempts at record breaking went for naught, owing to their being started too quickly after one another and as the operator at the starting line failed to give warning of their crossing the mark.

It was too dark to hold the championship final for which Fournier, Davis, Longuez

THE WORLD'S MILE MOTOR VEHICLE RECORD FIGURES, (NOV. 16, 1901).

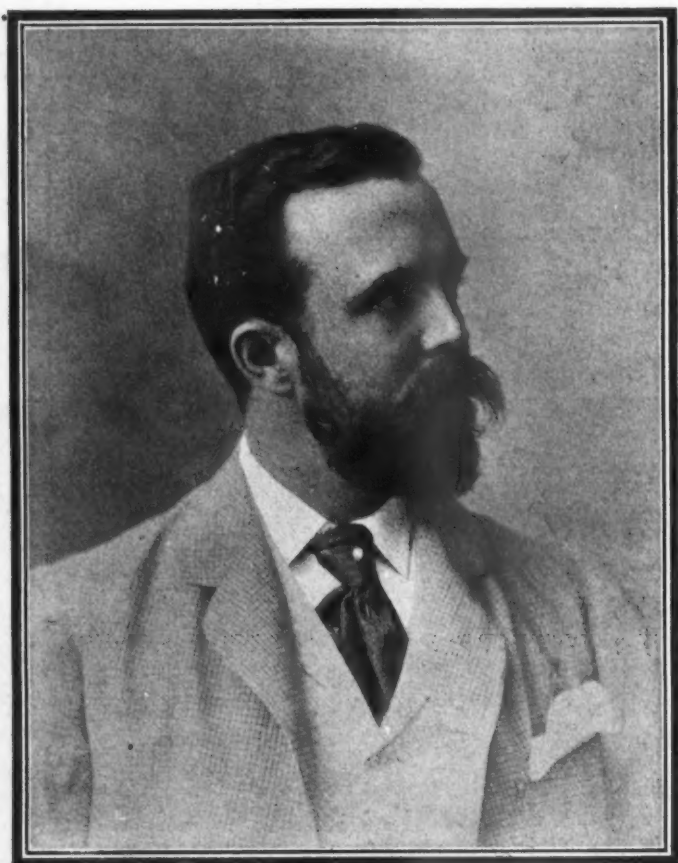
	Old record circular track.	New record straight- away.
Steam vehicles	1:39	1:15
Electric vehicles	1:46	1:03
Gasoline vehicles under 1000 lbs.		1:27%
Gasoline vehicles between 1000 and 2000 lbs.		1:53%
Gasoline vehicles over 1000 lbs.	1:06%	:51%
Motor bicycle	1:12%
Motor tandem	1:18%
Motor tricycle	1:18%

and Riker had qualified by making the fastest time in their respective classes and going the course faster than 1:30, the minimum qualifying time..



Col. J. McCalmont has placed an order with the British agents for the Panhard, for the vehicle shown in the illustration. The colonel desires to have an ideal touring carriage and apparently his wish will be gratified. The machine has a 30-horse-power motor, seats eight persons comfort-

ably, has ample room for baggage and is provided with shelter from bad weather. Its extraordinary wheel base should make it a comfortable traveler over rough roads, with which, however, the English traveler is not troubled to the same extent as we are in America.



ALBERT R. SHATTUCK.

President of the Automobile Club of America, Who Has Just Been Re-Elected.

CURRENT NOTES AND COMMENTS

New York, Nov. 18.—The Automobile Club of America held its annual meeting tonight and elected the regular ticket without opposition, as follows: A. R. Shattuck, president; Gen. George Moore Smith, first vice-president; Edwin Gould, second vice-president; Harry Payne Whitney, third vice-president; Jefferson Seligman, treasurer, and Albert C. Bostwick, Winthrop E. Scarritt and James L. Breese, governors for 3 years. The governors will elect S. M. Butler secretary.

The secretary reported 351 members, of whom 293 are active.

Reports were received from the contest, law, runs and tours, library, sign post and race committees.

The race committee reported its correspondence with the sports committee of the Automobile Club of France on amendments to the Gordon Bennett international cup rules, chief of which was the limit of vehicles to a minimum weight of 880 pounds and a maximum of 2,200 pounds.

The governors reported extensive correspondence on club affiliation and that the law committee had drawn up a scheme to be submitted to the clubs.

Fournier Will Manufacture

New York, Nov. 18.—Henri Fournier is in negotiation with well-known capitalists already engaged in automobile building to manufacture vehicles on patents of his own and of his mechanic, Charles Schmidt, a German. There is no truth in the story of the new concern building new machines. Fournier told a Motor Age man that beside special racers to order he proposed to build 6-horsepower vehicles for \$1,000 and 15-horsepower vehicles for \$3,000.

Fournier thinks he can beat 50 seconds for the mile under favorable conditions and said that the day before the time trials he rode a mile in 50 seconds on Long Island near Roslyn and Foxhall P. Keene made the mile in 53 2-5 over the same course the same day. The little hill at the start of the Coney Island course accounted for his slow time on Saturday. The European rec-

ord in 58 seconds, made by H. Jenatzy, at Denville. He says in his Paris-Berlin race he made, at times, 72 miles an hour.

Fournier and Foxhall P. Keene were the first entries to the Paris-Vienna race, which will be run June 15 next year. There were seventy-five entries the first day. Last week he cabled W. K. Vanderbilt, Jr.'s, entry.

President Hyde's Eastern Trip

San Francisco, Nov. 15.—Although yesterday was his busy day, President F. A. Hyde of the Automobile Club of California received with his usual cordiality the man of inquiry for Motor Age. He had been home only a few days from a month's tour in the east where he visited Chicago, Buffalo, Boston and New York, observing parenthetically that he found the parks in each of these cities open to autos without let or hindrance.

"And now," continued the enthusiastic president, "I think our club members will heartily join me, not only in trying to impress the minds of the park commissioners of San Francisco that they are far behind the times, but in making a determined effort to secure unlimited privileges in Golden Gate park."

Mr. Hyde thought when he started east that he would be able to solve the question of the relative merits of gasoline and steam vehicles, but he returned with the conviction that the question must be decided by each purchaser for himself; that each type of machine has its own advantages and disadvantages, and that what would suit one person would not suit another.

"Appearances indicate," said Mr. Hyde, "that the steam vehicle has the call in California, owing, I presume, as much to the enterprise of the agents as to anything else; in fact there are comparatively few gasoline machines in the club. The eastern gasoline manufacturers do not appear to have taken the same interest in the trade of this coast as the steam manufacturers have done. There is in fact no well established coast dealer in any gasoline carriage; such as are in this port and vicinity have

NOTES AND COMMENTS.

been purchased direct from the manufacturers."

Mr. Hyde was particularly delighted with the state roads in Massachusetts, which he thought ought to serve with benefit as an example to every other state of the advantages of good roads. In every direction round about Boston he found delightful driving made possible by the enterprise of the state in providing good highways which it built and now keeps in repair.

"An effort of this kind was made in California at the last legislature," said the good roads promoter who presides as chief official of the local automobile club, "and an appropriation was voted for a beginning but the governor vetoed the bill. Yet we are not dismayed and an effort to revive the project will probably be made at the next session, and it is hoped it will meet with better success.

"The Automobile Club of California has been growing rapidly of late, many new members coming in and many others who have recently purchased machines intend doing so. At present the club numbers nearly 100 members, and can easily turn out sixty automobiles on any occasion of sufficient interest.

"A novel method of securing a full attendance of members of the club at monthly meetings has been adopted: The idea was conceived that if we could combine both social and business features the members would attend and at the recent meeting of this kind it was successfully demonstrated. And so it has been arranged for the future that the night of the full moon will be the time of the regular meeting, the Cliff House being the place. The members will rendezvous at some convenient point in the city, to be named each month, and enjoy the run of about six miles through Golden Gate park or the Presidio to the Cliff House, and after the business of the evening is transacted, light refreshments and a musical program will be the order."

The Cincinnati Races

Despite the lateness of the season the races of the Cincinnati club to be held on Saturday of this week, give advance evidence of success. The better class of people in town have taken great interest in the event, the sale of boxes last Saturday de-

veloping quite a little healthy rivalry. Contrary to expectations, Fournier will have an abundance of competition in the open event of 10 miles for machines weighing 2,000 and over. Alexander Fisher, of Indianapolis, will be one of the competitors in this event. The officials have been selected and everything is in readiness for an interesting meeting.

Chicago's Auto Buses

After an existence of about half a century the Frank Parmelee Co., which has conducted the lines of buses between the Chicago depots, has been sold to a new concern and it is reported, apparently on good authority, that automobiles will take the place of the horse-drawn vehicles. Roger B. McMullen, formerly well-known as the selling agent of the Shelby Tube Co., is connected with the new enterprise and is said to contemplate the operation of electric vehicles.

The men behind the project are John J. Mitchell, president of the Illinois Trust and Savings Bank; Roger B. McMullen; C. H. Randle, president of the Gulf Company; James B. Wilbur, president of the Royal Trust Co., Norman B. Ream, and J. C. Shaffer.

"It is true," said John J. Mitchell, "that there is a local transportation company forming, but I cannot give you any figures at this time. We have made a bid for the Parmelee property and its good will, but the deal has not been closed. It will be some time before matters are in such shape that we can make any definite announcement.

"As to the scope of the plans I can say that we intend to be on an equal footing with any similar concern in the country. We undoubtedly will use the best vehicles, but whether they will be of the horse or automobile type I do not care to say."

Plans for National Association

The members of the Chicago Automobile Club held a meeting at the club rooms on Monday evening. One of the leading questions before the gathering was the selection of a club house, committees having been previously appointed to scour the city to find something suitable. Two locations were offered, one on Michigan and the other

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on Dearborn avenue. There was a long and spirited debate over the question and it was finally settled that it would not be desirable to incur the necessary expense until the opening of a new season, when, it was suggested, it may be possible to make arrangements with some of the country clubs for use of their quarters and perhaps establish a country club house.

The secretary read a communication from the Automobile Club of America relative to an alliance of the clubs of the country, as follows:

To the president of the Chicago Automobile Club:—Dear Sir:—The governors of the Automobile Club of America desire to establish an affiliation between your club and theirs, on the following basis:

First: All contests and races are to be governed by the rule of the Automobile Club of America.

Second: Should your club or this club disqualify any one taking part in a contest or a race, the disqualification is to be binding upon all clubs entering into this affiliation.

Third: The passing of liberal laws governing the use of automobiles on the highways.

Fourth: The protection of the legal rights of those using automobiles.

Fifth: The improvement of the highways.

Sixth: The furthering of the use of the automobile.

Seventh. The exchange of ideas for the betterment of the sport.

We shall be glad to be advised as to whether or not you desire to enter into an affiliation with our club on the above basis. If you do, we will send you a form of agreement covering the points named above.—Yours very truly, A. R. Shattuck, president Automobile Club of America.

The discussion which followed the reading of the letter showed that the members were in sympathy with a movement to establish a national association though with, perhaps, some changes in the programme suggested by the New York club. A committee was appointed, consisting of J. B. Burdett, F. X. Mudd and S. A. Miles, chairman, to give consideration to the matter and report to a meeting to be held next Monday evening.

Americans in Germany

One of the most aggressive classes of people with which American manufacturers have to deal in foreign markets is the German. Not only does he cover the markets of the world systematically and thoroughly, but

he takes such good care of his own markets that an outcry is immediately raised if some other nation manages to obtain a foothold there. A German paper publishes a warning to the home makers under the title of "A Technical Comparison," that American progress must be followed with the greatest care. "The rapid advance made by the motor industry in Germany," it says, "should not prevent us from looking around and keeping our eyes well open as to what is done by our competitors. In this regard the American industry promises to become the strongest opponent, soon surpassing the French in vehicles for practical purposes and at reasonable prices. The remarkable activity of the industry all over the continent indicates that there is a great future before it, how great it is impossible to foretell. In the United States there are made, at present, about twenty kinds of automobiles, all different in some features, and all, though striving at the same object, superior to the others in some particular. It certainly will not be long before an attempt will be made to introduce some of them, and we shall be able to learn something from them. Protective duties cannot prevent the introduction of meritorious novelties, and there are people willing to pay the prices provided there is something to be gained thereby."

The paper credits America with the possession of a dozen factories which produce nothing but parts for the trade and urges German makers to watch America with care and endeavor to follow its methods closely.

Big Exhibits at Chicago

Unless all signs fail the Chicago show will be the biggest thing of the kind ever held in this country, probably ahead of any ever held in England and second only to the great shows of Paris. The demand for space has been remarkable. When the diagram was laid out provision was made for a track 18 feet wide and running clear around the building. Inside of the track were about 11,000 feet of space available for exhibits. When the time for the allotment of space arrived, however, it was found that the demand for space in the center exceeded the supply by about one-half, with less than half of the important makers

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heard from. It has therefore been decided to abandon the track and before the week is over more than half of the space it would have contained will have been divided into exhibition spaces and allotted. The remainder will be disposed of in the order of receipt of applications.

An effort will be made to get all of the exhibits into the main building, leaving the annex, which is 75 feet wide by 175 feet long, for use for purposes of demonstration. The show occurs during the eight days commencing March 1, a time of year when the conditions are not likely to be favorable for outdoor demonstrations. Those who exhibited last year, however, will be glad to know that Wabash avenue has been asphalted all the way to Twenty-second street.

The following is a list of the allotments, so far as it has been possible to make them until the track space has been divided:

- 1, 2, 3, 4, Locomobile Co. of America.
- 5, 6, 7, 8, 9, 10, American Bicycle Co.
- 11, 12, De Dion-Bouton Motorette Co.
- 15, 16, 17, Bachellet Automobile Co.
- 18, Overman Automobile Co.
- 19, 20, U. S. Long Distance Automobile Co.
- 21, 22, Olds Motor Works.
- 23, 24, National Vehicle Co.
- 25, 26, 27, 28, Electric Vehicle Co.
- 34, (south half), B. F. Goodrich Co.
- 40, Badger Brass Co.
- 41, American Roller Bearing Co.
- 43, Veeder Mfg. Co.
- 44, Dixon Crucible Co.
- 49, Diamond Rubber Co.
- 51, Hartford Rubber Works Co.
- 52, K. F. Peterson.
- 53, P. J. Dasey & Co.
- 60, Holley Motor Co.
- 62, Goodyear Tire & Rubber Co.

Track Spaces:

- Winton Motor Vehicle Co.
- Mobile Co. of America.
- White Sewing Machine Co.
- Geneva Automobile Co.
- Milwaukee Automobile Co., 1000 feet.
- Beardsley & Hubbs.
- Foster Automobile Co.
- Chicago Motor Vehicle Co., 1000 feet.
- Steamobile Co. of America.
- Elmore Mfg. Co.

Royalty in a Race

There was scheduled for decision on the 17th, over a course of about 300 kilometers,

or a little less than 200 miles, a race between the Duke of Abruzzes, a near relative of the royal family of Italy, and Chevalier Colletti. The machine to be used by the former is of Italian make, by Fiat, and weighs 2,855 pounds. It has a 30-horsepower motor. Its maximum speed is 55 miles an hour. It seats six persons. The machine of his opponent is a 20-horsepower Panhard, of about the same weight and speed. The amount of the stake is \$10,000 which will be given by the winner to charity. The event is causing widespread comment in Italy because of the "quality" of the men engaged.

Prizes for Military Vehicles

In an endeavor to stimulate the production of motor vehicles for use in the army the British war office has offered large prizes. One of £1,000, another of £750 and the third of £500 are offered by the secretary of state for war for the best tractors for military purposes. The trials will commence in the spring of 1903 and be carried out by the war office committee on mechanical transport. The conditions may be obtained on application at the Horse Guards, Whitehall, London.

This Automobile Is Lofty

Some four or five months ago MOTOR AGE received an inquiry for the name of a maker who would undertake to build six or more automobiles capable of carrying from 2 to 3 tons, for use in Peru. It was stated that the height of the country above sea level would have to be taken into consideration. It seemed to be impossible to find a maker who would, at that time, take the time to make such a vehicle as could be guaranteed for the work. Now comes a story of a man—possibly the same one—who has had a steam vehicle built in Paris and is using it between the mines near Tarica, Peru, and the city. This place is 11,466 feet above sea level and the mines are 14,714 feet. They are connected with the mines by a fair road.

The machine had to be carried into Tarica in pieces on the backs on donkeys. The roads were very difficult, and only 60 pounds could be loaded on the back of any one animal. The machine was finally put together and does perfect service, running three times a week between the mines and

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Tarica, a distance of 13 miles. Part of the road has a 10 and 12 per cent. grade. At first there was some trouble experienced with the burners because of the elevation of the mine, at which the water boils at 85 degrees Centigrade, as the atmospheric pressure is a third less than it is at the level of the sea. This is the only automobile in Peru.

A Buyer Claims Damages

The American Autocarette Co. has filed suit against the Automobile and Mfg. Co. of Baltimore, asking for the appointment of a receiver. In April, 1900, the American Autocarette Co. entered into a contract with the Automobile and Mfg. Co. for the construction of ten autocarettes. It is stated that by the terms of the agreement the defendant was to have delivered five machines on July 15 and the other five on September

1. Two of the cars, it is said, were received on July 22, and the remainder between that time and December 1.

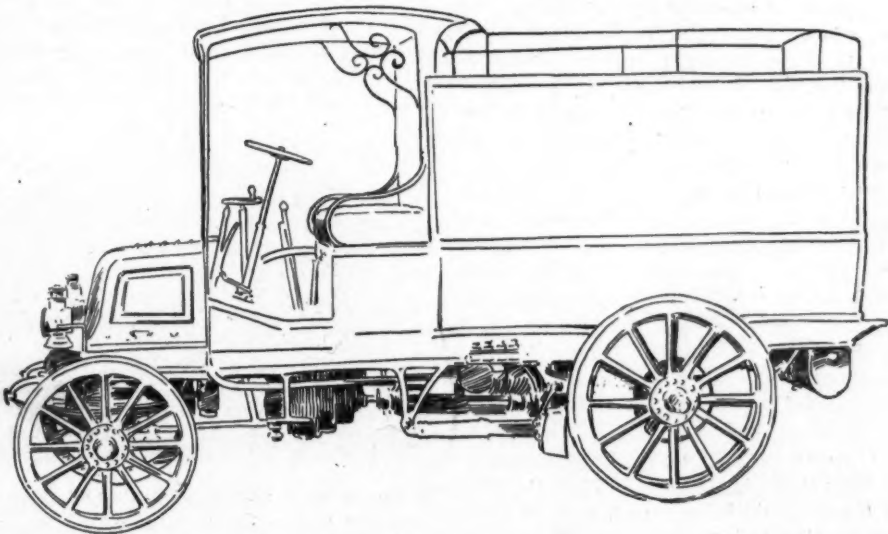
It is further alleged that the machines were not satisfactory. The defendant, it is stated, represented to the complainant that it needed money, and if it would advance a certain sum the defects in the machines would be remedied. The complainant advanced \$12,500.

In January last, it is stated, the Automobile and Mfg. Co. filed suit to recover the full price of the ten machines. The plaintiff then filed a cross suit to recover \$23,500, money advanced, damages and forfeitures.

Olds Company's Career

The Detroit Free Press recently devoted an entire page to a description of the Olds plant and business. Like many another

CARRIES THE BRITISH MAIL



Three years ago the British postoffice authorities experimented with a motor car for carrying mail matter between London and Brighton. All went well during the 3 months' trial but for reasons best known to themselves the postoffice people took no further action in the matter until the early part of last month. A contract has now been made with Milnes & Co., whose heavy vehicles made a satisfactory showing in the

late Liverpool trials, to carry the parcels mailed between Mount Pleasant, London Bridge station and Red Hill, Surrey, a small town 24 miles southeast of London, returning with the mail for London. The company has made a 6-horsepower vehicle for the purpose, which will have to carry about 1,200 pounds of mail on each trip. The initial trip was made on October 10 and resulted satisfactorily.

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institution whose main reliance was enthusiasm, energy and pluck, it says, "the Olds Motor Works had a modest beginning. Twenty years ago it occupied a one and one-half story frame building, 18x26 feet, with one iron planer, one engine lathe and an old drill. The plant was located at Lansing and the firm was known as Olds & Son. A few years later the senior member of the firm withdrew from taking active part in the business; this left the son, Ransom E. Olds, at the wheel, as president and general manager. The company, however, was so small at that time that Mr. Olds was obliged to be head mechanic, inventor, bookkeeper and salesman. To-day six and a half acres of floor space are required for the purposes of the firm, and the business is constantly enlarging. The new Detroit plant is located on four and one-half acres of Jefferson avenue, and this, with the Lansing gas engine plant, gives 200,000 square feet of floor space filled with the most modern machinery and equipment. There is besides another new plant in process of construction at Lansing, the grounds of which will be provided with a fine track for racing purposes. The company has also recently come into possession of 56 acres at Lansing, on which an additional plant is being erected. It was in 1880 that the Olds company was first established in Lansing with the modest equipment above described. Five years later, in 1885, the company turned out its first gasoline engine, the demand for which increased so steadily as to necessitate the erection of a new shop, 24x110, in which the business was continued for five years.

Improvements made in the Olds engine so increased its sale that at about this time a two-story building, 24x55, was added to the plant. In 1894 patents were secured on the present type of engine manufactured by the firm, which has proved to be so great a seller that each year saw the need of new buildings and increased equipment. Yet the firm was unable to meet the growing demand for this engine, notwithstanding it was working but a small number of states.

Mr. Olds obtained his first patent on a horseless carriage in 1896, although as far back as 1887 he built his first motor vehicle; this was a three-wheeled machine, using steam, with gasoline as fuel, the box being large enough to encase the whole of the machinery. Mr. Olds built this ma-

chine for his own use, and had no idea of putting a machine of this type on the market. Later, in 1892, he built another steam machine, this being fitted with two engines, 3-inch by 6-inch cylinder, and also used gasoline for fuel. The gas engine at that time was very large and bulky, being more or less in a crude state; for instance: a 3-horse power engine would have a 4-foot balance wheel and weigh about 1,500 pounds. As this branch of the business progressed they were able to build a gas engine that would develop more power at less weight and in a more compact form, so that Mr. Olds' attention was turned to adapting it to the motor vehicle. They were in the engine business, and supplied them for nearly every kind of power, and there was no reason why it should not be applied to the vehicle.

A Business-Like Truck

A steam truck with a business-like appearance is that made by the International Power Co., of Providence. It is front driven and its rated capacity is 6 tons. It weighs 4 tons. Excepting only the wheels and axles the weight is carried by springs. The company believes that this is necessary



owing to the condition of roads and the use of metal tires. The boilers and engine are rigidly mounted together, making a complete article of manufacture in itself.

Studebaker-Westinghouse Vehicle

It is reported from South Bend, Ind., that the wagon on which the Studebaker company has been at work for the Westinghouse company has been completed and tested satisfactorily. The vehicle is a steel-tired wagon such as is commonly used by the American Express Co., is operated by

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electricity and is designed to carry a load of 1,500 pounds, as well as two men. The report does not say so, but it is probable that the wagon is equipped with the hub motor, the patents of which are owned by the Westinghouse company.

Exports of Motor Vehicles

Washington, D. C., Nov. 15.—The figures for exports of motor vehicles from the port of New York for week just ended are as follows: Argentine Republic, 1 case motor vehicles, \$60; British Australia, 1 package motor vehicles, \$135; Dutch East Indies, 2 cases motor vehicles and parts, \$1,200; London, 21 packages motor vehicles and parts, \$4,262.

The Toledo Steam Truck

The American Bicycle Co., at its Toledo factory, is putting through a number of steam trucks similar to that shown in the illustration. It is equipped with a 20-horsepower compound steam engine and water tube boiler, a feed water heater, a Westinghouse duplex pump and a tank injector so that water may be taken at the roadside



through a hose. Its fuel is kerosene. The truck weighs 10,000 pounds, carries 3 tons, and may be had either open, as shown, or covered.

At the late trade dinner in New York Mr. Walker told a gasoline story. He said he had met John D. Rockefeller, whom he had invited to take a ride in his automobile. Mr. Rockefeller had enjoyed the ride immensely, but when Mr. Walker bought some gasoline a few days later he found that the price had jumped from 7 cents a gallon to 9 cents. Then he met Mr. Rockefeller again and asked him to take another ride. Mr. Rockefeller again was much pleased, and when Mr. Walker tried to purchase some more gasoline he found that the price had jumped up to 13 cents a gallon.

"Well, I don't know just how it happened," said Mr. Walker, "but when I met Mr. Rockefeller in my automobile after that I did not ask him to take a ride."

According to a local paper, a certain woman who is employed in a Caribou (Me.) family had heard that his satanic majesty was to come in a chariot without horses, and was a firm believer therein. Consequently, when she saw an automobile coming down the street she felt sure that he had arrived, and with a scream rushed to her room and covered herself up with the bed clothes. It was with considerable difficulty that the mistress of the house succeeded in convincing her that it was not the devil that she saw, but simply a Caribou man enjoying the luxury of an automobile.

Following the lead of the Long Island club which, some months ago, volunteered to use one drive only when going to Coney Island boulevard, the Automobile Club of America is considering the advisability of requesting automobilists to use only one of the drives in passing through Central Park. The matter will be debated at an early meeting and if it meets with the favor of the members a consultation will be held with the officers of the Road Drivers' Association to settle the route. Automobilists, as a body, are more thoughtful of the rights of drivers than some of them deserve.

A vehicle destined to carry freight in the Congo Free State was recently given a trial in Belgium. It carried a load of 6,600 pounds of scrap iron up a 5 per cent grade with ease. The truck weighs about 5,500 pounds, has a 20-horsepower motor and may be operated with alcohol or gasoline. Its average speed is about 8½ miles an hour.

The automobile was used for the first time, this year, in the Swiss army. The machines were rented and the military department paid \$4 a day for each. Five machines were used for transporting arms and equipment. The depreciation amounted to \$240. The performances were considered quite satisfactory by the military department.

During the late campaign in New York, Seth Low, the successful candidate for mayor, did all his traveling between meet-

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ings in an automobile. The candidate was able to speak at six meetings in an evening, some up-town, some down-town in the city and some over in Brooklyn, a feat which has never before been possible.

The park commissioners of Montreal have lately had to deal with a complaint against the admission of automobiles to the parks of that city on the ground that they frighten horses. They have very sensibly announced that there is nothing in the by-laws which prevents the new vehicles from entering the parks.

An enterprising resident of Choteau, Mont., is in the east to buy a big machine which he intends to run between that city and Great Falls for passenger service. The distance is 55 miles and he expects to make the round trip every day.

Edward V. Wilbern, of Cincinnati, of course a millionaire—everybody who does anything of this sort is a millionaire nowadays—announces that he will make a tour of the world in an automobile. He hails from Cincinnati.

The vehicle destined to carry passengers between Buffalo and Sheridan, Wyo., made at Omaha and taken across country by the purchasers, made its first trip on the 8th. It made the 90 miles at an average speed of 15 miles an hour.

Fournier, in Keene's machine, made a mile in 57 seconds on Long Island one day last week, equaling the time made by Vanderbilt the week before.

Vanderbilt and Keene are reported to have sent entries for the race from Paris to Vienna, which starts on June 15. The distance is about 900 miles.

Cecil Rhodes was a sufferer from an automobile accident last week, being thrown out on the Milan-Turin road. He was not hurt seriously.

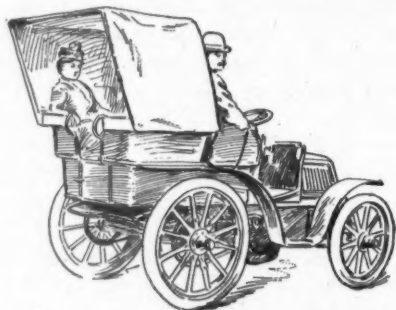
E. J. de Lamare, who went in to Dawson last year with an automobile with the in-

tention of using it on the ice as a means of transit through the Yukon, has returned to Winnipeg and announced that he is satisfied that he cannot operate the machine there successfully at present.

The Italian Automobile Club has now 974 members, of whom 238 are ladies.

Suggests a Dust Shield

E. C. F. James, of Ireland, is the designer of the dust hood shown in the illustration. "It is the first I made," he writes to an English paper, "and is only a rough



pattern. It acts like a cowl, creating a draught of air, which entirely prevents the dust coming into the car. When it rains it can be reversed, or if not wanted can be folded or removed. It can be made to suit any kind of car, and what I claim for it is



that it is a simple, cheap and effective way of preventing dust coming into a motor-car. It may be contended that the device catches the wind; this, of course, is true to the extent that it catches the wind less the amount two people catch; which is, however, very small."



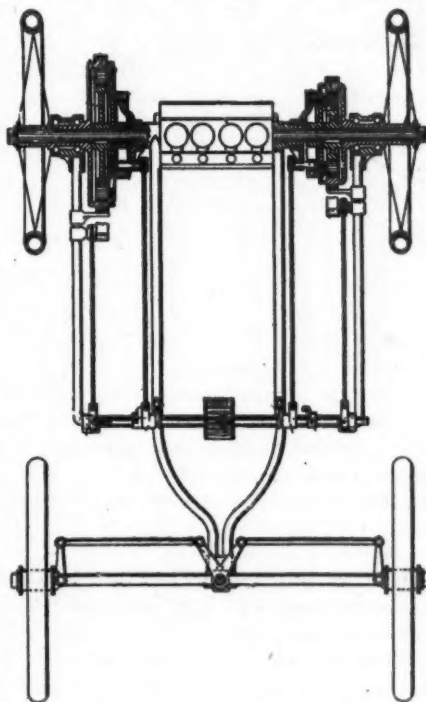
LATE EFFORTS OF DESIGNERS

Hermann Lemp, of Lynn, Mass., is the inventor of a speed-changing device, comprising several new features, some good and some otherwise. In the preferred form, a plan of which is shown in the illustration, a four-cylinder motor is used, which is located directly over the rear axle. The crank shaft of the motor is of sufficient length to extend laterally through both driving wheels. Mounted on the ends of the shaft are two sleeves, on the outer ends of which are secured the driving wheels. Formed integral with the inner ends of these sleeves are drums having internal gear teeth and differing in diameter. These drums form a part of the gear mechanism which is the same for each wheel except the variation in the size of the drums, which gives a corresponding difference in the speed of the wheels, so that a description of one gear will suffice for both.

Sleeved on the engine shaft is a frame or disk on which is mounted a set of small pinions meshing with the internal gear above described. This frame, or disk, is capable of rotating around the engine shaft under normal conditions but is provided an outwardly extending hub which forms a part of a friction clutch, whereby it may be held in a fixed position when desired. Keyed to the motor shaft is a spur gear, meshing with the pinions on the disk, whereby motion applied to the motor shaft may be transferred through the pinions to the internal gear of the sleeve to which the driving wheel is secured. If the disk is allowed to rotate freely a rotary motion of the motor shaft will merely result in the rotation of the disk but if the clutch is applied holding the disk against rotation the sleeve to which the driving wheel is secured will be rotated in a direction opposite to that of the motor shaft and at a speed proportionate to the relative sizes of the gear on the motor shaft and the internal gear of the drum. The periphery of the drum is arranged to serve as the seat of a band brake. The two clutches and band brakes, one each for each wheel, are operated by the same lever which is so pivoted that it may be moved laterally and caused

to connect with the clutch of either wheel as desired. When connected with either gear a forward motion of the lever puts the clutch in operation and a backward motion applies the brake.

It is obvious that the prime objection to this device is that the drive is applied to but one wheel, which seriously interferes



with turning in the direction of the side of the driving wheel and puts a severe strain on the frame at all times. Another objection of considerable importance is the lack of a backward drive. To be sure there are several vehicles on the market without this very desirable adjunct, but its omission is far from advisable.

Freaky Driving Mechanism

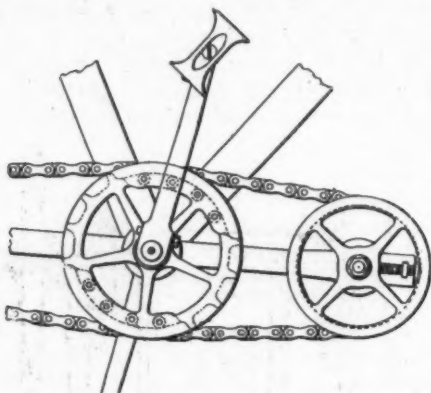
John Taylor, an engineer of Newtown, New South Wales, has designed a driving mechanism for bicycles with which he is so highly impressed that he has gone to the extent of securing an American patent.

The scheme is clearly shown in the illus-

LATE EFFORTS OF DESIGNERS.

tration and, like many other relics of inventive genius, notably the elliptic sprocket, is designed to reduce or avoid the period of dead centers in a crank drive.

In this device the chain is carried forward of the driving sprocket and over a flanged idler. A sufficient number of teeth are omitted from the driving sprocket that



when the cranks are in the period of dead center the chain may run freely on the sprocket and the latter may be jumped forward to a point where the next tooth will engage with the chain, thus reducing the time required in passing the dead center. It is also specified that by holding the cranks in the proper position the device may be used as a coaster, the chain running on the rollers; taking the place of the teeth on the flat portions of the sprocket.

In consideration of the fact that the dead center bug-a-boo has been practically banished ever since the advent of toe clips and ankle motion and the evident and unavoidable jerk incident to the seating of the first tooth after passing the flat portion of the sprocket it is not likely that Mr. Taylor will ever realize very heavily on his American patent.

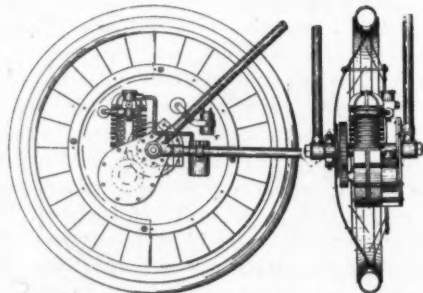
Billings' Compensating Gear

Realizing the inconveniences of attaching and removing the compensating gear as usually constructed and applied, F. C. Billings of Hartford has designed one in which the bevel gears attached to the inner ends of the split axle are constructed with split hubs, one half integral with the gear and the other secured to the fixed portion with bolts. The remainder of the gear is so constructed that by detaching the loose portions of the hubs the entire gear may

be passed out between the ends of the axle and removed from the frame. The body of the gear is composed of a peripheral ring having a short central web slotted to receive the axles of the small pinions meshing with the bevel gears on the axle. Circular side plates are provided which are bolted to the web and clasp between them and within the slots in the web of the pinion shanks above mentioned. In order to thoroughly secure the bevel gears to the axle the ends of the axle are provided with suitable keys which seat in the fixed portion of the split hub. Any one who has ever been compelled to attach or remove the ordinary form of compensating gear will readily appreciate the advantage of the device.

An English Motorcycle

English manufacturers of motorcycles are giving particular attention to wheel-contained motors. The latest is the invention of William Buckley, of Sheffield, and the distinctive feature is that the motor and appurtenances may be placed in or removed from the wheel without disturbing its construction. A fixed axle is mounted in the frame of the machine and upon this is a hollow hub, free to revolve thereon. The wheel is built upon this hub and comprises a dished disk, secured to one side of the hub and having its circumference, to which



the rim is attached, in the central plane of the wheel. The rim is thus supported on one side by the disk and on the other side by spokes, the inner ends of which are not secured to the hub, but to a floating ring, held in proper lateral distance from the disk by suitable braces, and rotatably mounted on a fixed portion of the frame. The ring is of sufficient internal diameter to allow the passage of the motor and all accessories desirable to be placed within the wheel. The motor is located as shown in the illus-

LATE EFFORTS OF DESIGNERS.

tration and is fixed against rotation by attaching to the fixed axle or the side members of the frame as may be desired. The driving connection is by a spur gear, secured to the disk side of the hub.

The greatest objection to the wheel contained motor has been the inconvenience of getting at or removing the motor and its parts without dismantling the wheel and if this wheel is sufficiently strong to withstand the severe lateral strains to which a motorcycle is subjected it should be so designed as to decrease the objectionable features.

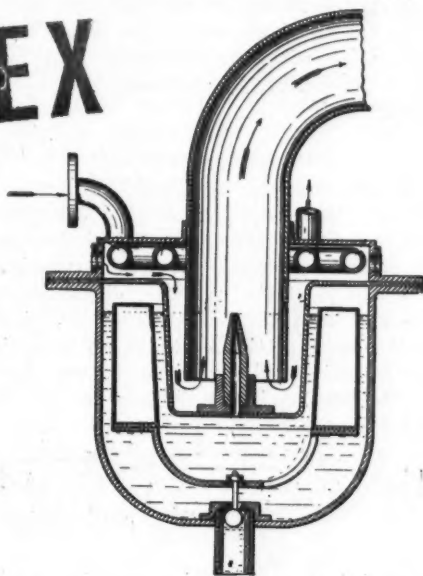
New French Carburetor

Francis LeBon, of Billaucourt, France, has constructed a float feed carburetor so designed that the gasoline or other liquid is always taken at the center of the level thereof, whatever may be the position of the vehicle or apparatus. The invention consists of a receptacle whose bottom is provided with a central inlet nozzle controlled by a ball or other suitable valve. This valve is attached to an annular float arranged within the receptacle and constructed so as to maintain the proper level of the liquid. The upper end of the receptacle is provided with a horizontally projecting flange to which is secured a similar flange of an inner receptacle, the bottom of which is provided with a central hole. Over the hole is a vertical ejecting nozzle, the upper end of which is on a line with the upper level of the fluid in the outer receptacle.

Above these receptacles, and secured to their projecting flanges, is a hollow dome or cover plate, the periphery of which is provided with a number of holes adapted to be controlled by a ring, rotatably arranged around the periphery of the cover and having similar holes, which serve for the admission of air to the carburetor.

Secured to the center of the cover plate is the outlet pipe, the lower portion of which forms the mixing chamber, extending downwardly to a point near the bottom of the receptacle and through which the mixture of air and gasoline passes to the combustion chamber. Arranged within the cover is a coil pipe through which is passed a part of the exhaust gases from the motor for the purpose of heating the air entering the carburetor. When the motor is at the suction stroke, the air entering

the carburetor through the holes in the cover and warmed by the coil pipe passes downward through the annular space between the pipe and the inner receptacle and thence upward through the outlet pipe forming the mixing chamber, carrying with it the liquid contained in the central nozzle. From the drawing it may be readily seen



that the liquid is continually drawn off at the center of the level, notwithstanding the position of the apparatus. While the swaying of the vehicle is thus, in a measure, provided for, the still more formidable troubles of the float feed carburetor occasioned by the vertical jolt of the vehicle are still to be contended with.

New Daimler Steering Wheel

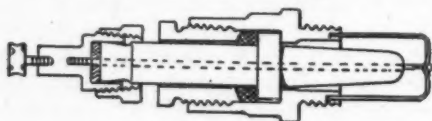
Wilhelm A. Maybach, of Cannstadt, Germany, has designed a steering wheel, the American patents of which are assigned to the Daimler Mfg. Co. of New York. The distinctive feature is that it is so attached to the frame that it may be moved in a vertical plane to adapt it to the position of the operator. The lower end of the steering rod is revolvably mounted in a socket which is pivotally secured to the frame in order to provide for the vertical play of the steering rod. Revolvably mounted on the pivot arm of the socket is a lever, the upper end of which is provided with a toothed segment meshing with a bevel gear on the steering post. The lower arm of the lever is

LATE EFFORTS OF DESIGNERS.

connected with the steering gear which may be of any desired pattern. The wheel steering apparatus is becoming more popular and has many desirable features, but it is somewhat doubtful if this particular pattern will meet general approval as it will be readily seen that a vertical motion of the steering post while the wheel is held stationary will tend to have the same effect as the rotation of the wheel and while this point is claimed by the inventor as an advantage, its desirability is questionable.

Krastin's Sparking Plug

August Krastin, of Cleveland, has designed a sparking plug in which he has paid particular attention to avoiding the accumulation of soot on the sparking points and their possible displacement through heating. The electrode attached to the outer portion of the plug, through the ground circuit, consists of two wires in the form of intersecting arches. It is



contended that with this formation much smaller wires may be used and of such length that the incoming vapor, in sweeping across them, will effectually remove all soot or other deposit. The other portions of the plug do not materially differ from the common forms except that the binding post at the outer end is so constructed that by screwing up a taper nut the shell of the binding post is constricted on the taper end of the insulating tube with the object of preventing the escape of gas around the inner wire. There is a dangerous liability that in this construction of the binding post sufficient pressure may be exerted on the insulating tube to crack it.

A Good Gradometer

As an attachment to an automobile, particularly when touring, a gradometer is a source of considerable satisfaction as it is gratifying, when a steep grade is encountered, to know just what it really is. There are several gradometers in use, and most of them possess the same objectionable feature. Being built on the plan of the spirit level they are extremely sensitive

and if the road is at all rough the variations of the bubble are so rapid that it is difficult, if not impossible, to get a correct reading. To obviate this trouble J. H. Bullard, of Springfield, Mass., has designed an instrument consisting of the usual curved glass tube which is so located that the center is the lowest point. On the bot-



tom of the tube are graduation marks showing the per cent. of grade. Within the tube is some non-freezing liquid such as alcohol and the indicating member, which is a metal ball, is placed therein, after which the end of the tube is sealed. It will be readily understood that the ball will at all times seek the lowest point of the tube and this shows the degree of inclination. The object of the liquid is to prevent the too rapid movement of the ball, and this is done by the liquid having to pass between the ball and the inside of the tube as it rolls along the tube. As a short time is required for the ball to change position it does not oscillate with every slight swing of the vehicle, as does the bubble in the spirit level, but readily adapts itself to the grade of the road.

Fenner's Igniter Adds Complication

Jess B. Fenner, of Buffalo, is the designer of a make and break igniter which is actuated by an eccentric on the motor shaft. The apparatus within the cylinder consists of a fixed spring and a movable contact with a rocking motion. The arrangement of this rocker is such that the projecting contact point is given a forward and back as well as oscillating motion, the line described being in the form of a crescent so that on the return stroke the contact point passes clear of the spring.

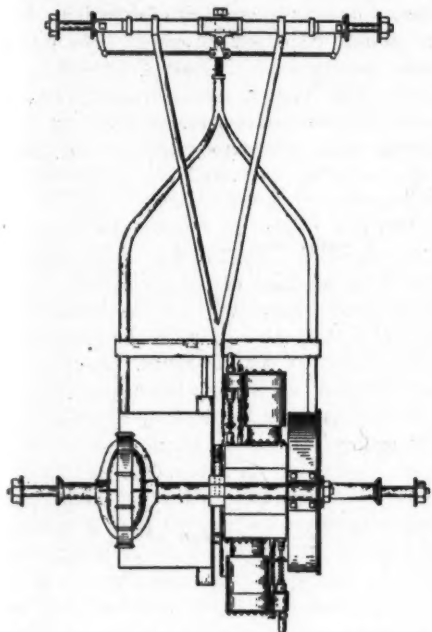
The only objection to the device is of a negative character as, while there is no doubt of its doing the work, there are many others in general use that do it equally well with considerably less complication.

Ford's Running Gear

Henry Ford, of Detroit, who recently came into prominence as the designer of a promising racing machine, has been recently granted a patent on a running gear which

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may be said to be made up of two triangular frames oppositely disposed. The heavier one, to which is secured the driving apparatus, is so located that the rear axle forms the base while the apex is pivotally connected with the center of the front axle.



The other extends rearwardly from the front axle and is secured to or near the rear axle. By this arrangement the front axle is amply secured against horizontal deflection, but is allowed an extreme vertical flexibility.

The Brilliant Gas Lamp

The success of the Brilliant and Halo gas lamps, manufactured by the Brilliant

Gas Lamp Co., Chicago, has led to the placing on the market of a number of imitations which are infringements on the company's patents. The Brilliant lamp has been on the market for 4 years and has given general satisfaction as well as being one of the neatest appearing lamps on the market. The varied line includes lamps adaptable to every purpose, both in and out doors, with a variation in price sufficient to meet all conditions. A point on which the manufacturers lay particular stress is the economy of fuel, the cost of operating the standard pattern being about 15 cents per month. The latest pattern is the Halo pressure lamp, particularly designed for use where a strong light is required. The light can be regulated according to the power applied and as the pump is inside the tank it is always ready and it is easy to regulate the pressure. The tank is removable and is taken out of the frame for filling and pumping up which can be done without disturbing the other parts of the lamp. But a low pressure, from 1 to 3 pounds, is required which will be appreciated by those who have used the heavy pressure lamps, requiring 50 to 75 pounds, and the use of a large foot pump, which is both inconvenient and cumbersome. This pattern will give up to 600 candle power and will light a room 25x40 at an expense of about 3 cents for 10 hours. It is handsome in appearance, without smoke or odor, absolutely safe and has nothing to get out of order.

Salem Automobile Co., Salem, Or., capital \$3,000; incorporators, T. L. Davidson, H. G. Guild, Amos Strong and F. N. Derley.



SOMETHING ABOUT AUTOMOBILE TIRES

Things move so fast nowadays, says the Carriage Monthly, that many people lose track of the improvements and changes constantly being made. It is enough to make one stop and think when he realizes the fact that road speeding wagons have been built which weigh less than 55 pounds and are driven at the rate of 2.10 per mile, carrying a weight of 200 pounds. And yet these same wagons are perfectly safe to ride in at such speed. Buggies, surreys and phaetons are being built of exceedingly light weight, and if good care is taken to use only first-class material and hand workmanship, they will last from 15 to 20 years—indeed, we have known them to last a great deal longer.

Of late there is a new problem before the carriage and automobile builders. It is this: how to build automobiles in proportion to the weight they have to carry and yet keep them as near as possible to the limit of practical lightness. There has been a great deal of trouble on account of the construction being too light for electrically driven vehicles. Not only this, but the calculations for the dimensions of wheels, springs and axles, as well as parts of the bodies, were out of proportion to the weight which must be carried. One of the first things to provide against is the danger of getting too much weight on the rear wheels, or worse still, on the front wheels. Weights must be distributed not only in proportion to the diameters of the wheels, but so that they will give stability to the vehicle. Correct proportion throughout the entire construction insures strength and guarantees lasting qualities which cannot be obtained in any other way. It is an application of the old adage, "An ounce of prevention is worth a pound of cure." Start right and you will come out right.

Generally speaking the dimensions of front and rear wheels are the same, except as to their height, but it has been too often the case that either the rear or the front wheels have carried 1,000 pounds more weight than the other pair, the result being that the overloaded pair of wheels gave out before the others. Rubber tires, both solid

and pneumatic, have been a blessing to many a builder whose lack of experience has led him to construct automobiles in which these defects were noticeable. If such vehicles were run on rough roads, without solid or pneumatic tires, as ordinary carriages are, the consequences would have been far worse, even, and the trouble would have appeared much sooner.

The use of one or two of the later inventions has been the means of overcoming a large percentage of the difficulties which have stood in the way of the automobile builder. With ball or roller bearing axles at least 25 per cent is saved. Another 20 per cent can be saved by the use of solid or pneumatic rubber tires. Now as almost 50 per cent of the total friction to be overcome in running an automobile arises from road resistance, and as the use of ball, or roller, bearings and rubber tires overcomes practically 45 per cent of this, one can readily see how great has been the saving resulting from the use of these modern inventions.

Fifty pounds per ton is a conservative estimate of the force required to pull an electrically driven automobile over an asphalt pavement, while street cars require from 10 to 30 pounds, and railroad cars from 5 pounds upward, on their respective tracks. Three things regulate the differences in the force to start and maintain the speed. First, the construction of the gearing; second, the friction on the axle; and third, as we have already said, the road resistance. It is known that a definite weight in motors or batteries is necessary for the production of a certain amount of power. How much more saving may be effected in this direction it is too early to say. At present the only practical solution of the problem is in the direction of the distribution of weight, the use of anti-friction bearings and the reduction of the axle and the tire friction on the road itself. Ball bearing and roller bearing axles have pretty nearly reached the point of perfection, consequently there is very little improvement to be looked for in this direction. We believe there is considerable room for im-

SOMETHING ABOUT TIRES.

provement in the road and tire friction. Take, for instance, a set of solid rubber tires on an electrically driven automobile brougham which has a battery weighing about 1,000 pounds with two motors weighing not less than 250 pounds. Include in this outfit at least 200 pounds additional weight for springs and body, compared with an ordinary brougham, and we have 1,450 pounds extra weight to carry. Calculations must be made for this as regards wheels, springs and axles. To make an accurate comparison between a straight front brougham drawn by horses, and an electrically driven brougham, let us assume the weight of a light built private brougham to be about 1,000 pounds, and if we include three passengers, two inside and one on the driving box, say, 500 pounds more, or a total of 1,500 pounds for carriage and load. The electric-driven brougham body, including the wheels, springs and axles, if built with a view to what it has to carry, will weigh 250 pounds more than that drawn by horses. The batteries and motors will weigh 1,250 pounds, which makes up, with the weight of the passengers, 3,000 pounds. This is twice as much as the private brougham, and if we add the weight of the steering gear, levers, brake, controller, etc., we get a total of 3,100 pounds.

The present size and quality of rubber tires used on private broughams are just about right, but, in our opinion, there is a great deal of room for improvement in the tires used on the ordinary electrically driven automobile. Generally they are not very much heavier on the latter vehicle than on the former, and if they were a good deal heavier it would not improve the situation very materially. The heavier the tire the greater amount of flattening, consequently the increase in the amount of friction on the bearing surface of the tire. To overcome this flattening a great deal of resistance is required, and therefore an increased power to overcome this deflection. This is not all. If a rubber tire is overworked it is soon ruined, the constant pressure destroying the fibre of the rubber until whole pieces soon began to drop out. This is not legitimate wear.

A few suggestions concerning the dimensions of an electrically driven brougham may not be out of place here. As we have said, the average private built brougham

usually carries only about 500 pounds, while the electric brougham carries nearly 2,000 pounds. Is it any wonder, in the latter case, that short service should result from the gears and bodies? Bodies and gears have been built too light from the start. This explains the collapse of vehicles and the constant visits to the repair shop, and has led to a great deal of unfavorable comment. In many cases, we regret to say, rubber tires have been the first part of the vehicle to give out. Whether or not the shape of the rubber tire was at fault, we are not prepared to state. The wearing qualities will be determined by the omnibuses running at present in Chicago and New York. The Calumet Tire Rubber Co., of Chicago, makes the tires for the omnibuses used in that city. They are circular shaped on the running surface. On the other hand, the tires for the new buses at New York city, made by the Auto-Dynamic Co., are wide and flat on the running surface. The difference in shape gives the first real opportunity for a test, and the results should be carefully watched both by builders of horse-drawn vehicles and by those who construct automobiles. They should note the exact shape of the tires and their behavior, the weights carried, the exact difference in draft and the distances traveled, for some astonishing things will probably be brought to light. It is greatly to the credit of the rubber tire manufacturer that he is showing a most intense interest in these matters, and is bending every energy to improve the heavy-load-tire construction so that failures will be fewer and success the rule in the near future. We wish for them the success which their enterprise warrants.

THE WEARING CAPACITY OF RUBBER TIRES.

Competent authorities insist that when rubber tires are overloaded they suffer not only from friction, but also from chemical changes. This seems evident from the great rise in temperature which takes place.

Recognizing the fact that wear of tires, like all other substances, is merely a question of area, load and speed, still very few manufacturers possess any reliable data on the subject. Taking it as a rough rule, modified by known cases of failure that 250 pounds per square inch of surface in contact with the road is a good working load for a solid rubber tire, we have the common

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basis. On a 36-inch wheel this will allow 650 pounds for every one inch of width. The width of the tread of the wheel varies necessarily with the section.

The essentials of a tire for good automobile work, whether light or heavy, are these: An ample width of tread, ability to bear a load of not over 250 pounds per inch of width; the largest possible area without liability of rolling and good protection against creeping and heating.

It is commonly known that the unusually severe strain imposed on rubber tires for heavy motor vehicles has, generally speaking, been but poorly met, and that the safety of the tire is not so well provided for as in case of tires used on light carriages. The result has been that the average heavy motor tires are rather uncertain and short lived affairs, liable at any time to fail through mechanical weakness.

If the heavy freight vehicles and large omnibuses are made a success, the largest attention should be paid to the development of a reliable, durable and moderately expensive tire of rather less resiliency, and

above all one that, in the event of failure, will allow the vehicle to proceed home without ruining the rim or tire beyond hope of repair.

Undoubtedly the most serious trouble in the use of pneumatic tires arises from their being punctured. Punctures are due either to the weakness of the tire itself or to the fact that it comes sharply in contact with some pointed object on the street.

It is said that a 5-inch pneumatic is more expensive to maintain than a 4-inch, because of its shorter life. In the same way a 3-inch is declared to be cheaper than a 4-inch. There is a limit, however, to the application of all rules.

Any tire with an excessively great reinforcement on the tread, it may be safely affirmed, has a shorter life than the one with the ordinary amount, because the bending which takes place under the load on each side is confined to a single point and soon destroys the tire. For the same reason any form of metallic protecting strip which may be placed on the tread soon leads to the destruction of the sides of the tire itself.



THE MANUFACTURE OF A MOTOR BICYCLE

BY FREDERIC B. HART.

The future commercial status of the motorcycle is now assured. The demand for motor bicycles is rapidly increasing as the utility of that type of self-propelled vehicle is becoming more generally understood. There is now a number of machines on the market, giving satisfaction to their owners, and there can be no doubt that the demand will continue and grow. The motor bicycle is, in the matter of speed, beyond comparison with the pedal propelled machine, at least in the use of the average rider, and in a day's journey on the road will outdo the best. It is, and will continue to be, the cheapest form of motor propelled vehicle, and has the, to many, great advantage of not requiring a carriage house to store it in.

Another advantage, which will appeal with particular force to the still great number of metropolitan business men who would be glad to ride between their homes and offices but find themselves becoming unpleasantly noticeable in knickerbockers, is that no particular garb is required in its use, a pair of leather leggings and a cap being all that is required under any conditions, and these not actually necessary, though a decided convenience when the roads are dusty.

Under these conditions there is no doubt that a number of cycle houses, both great and small, are contemplating or are already making arrangements for embarking in the manufacture of this assuredly popular machine and a few hints based on the experience of those already in the business may be worthy of consideration.

The first point to be impressed on the mind of the would-be manufacturer of motorcycles is that it will demand a vastly greater amount of capital and preparation, particularly the former, than was required to embark in the construction of plain, pedal-driven bicycles. No one need expect to meet with immediate success or suppose that all he has to do is to buy a motor—no matter how well and satisfactorily tried—and attach it to an ordinary bicycle frame, even though he may consider

it abundantly staunch and heavy, without carefully considering the numerous details that go to make up a desirable machine. On the contrary, careful consideration of every part and detail will be required and no one need expect to succeed until he has become thoroughly familiar with the innumerable requirements through actual use of the motor-driven bicycle under the varying conditions to be provided for.

As a proof of this it may be safely stated that there is no manufacturer of motor cycles in the market, who has turned out any considerable number of machines, whose present pattern does not radically differ in many details from those first built. At least while the general construction may be the same there will be found many important changes of detail that go to assure the utility of the whole.

One idea that must be absolutely banished is the utilization of old, or left over bicycles, no matter how well or strongly made. The strains on a motor cycle frame occur at points where they are not provided for in the ordinary frame. It is no doubt true that with a light motor of low power such a machine might be used for light work on good roads, but the average motor cyclist soon develops ambition to go where he would never have attempted to go on a machine of his own driving, and that, too, at a speed never expected of the pedal propelled machine. While many manufacturers may retain the general lines of the diamond frame the successful motor bicycle of the future will be one wherein the stresses will be specially provided for.

In entering this line the first thing to be considered is the motor—the heart of the machine—and it is useless for any one to attempt to build them, with any degree of commercial success, without an abundance of capital for installing numerous special machine tools and jigs indispensable in the construction of a good motor. It is therefore advisable for the manufacturer, beginning in a small way, to buy the motors ready for use. There are a number of well-made motors on the market adapted to the

THE MANUFACTURE OF A MOTOR BICYCLE.

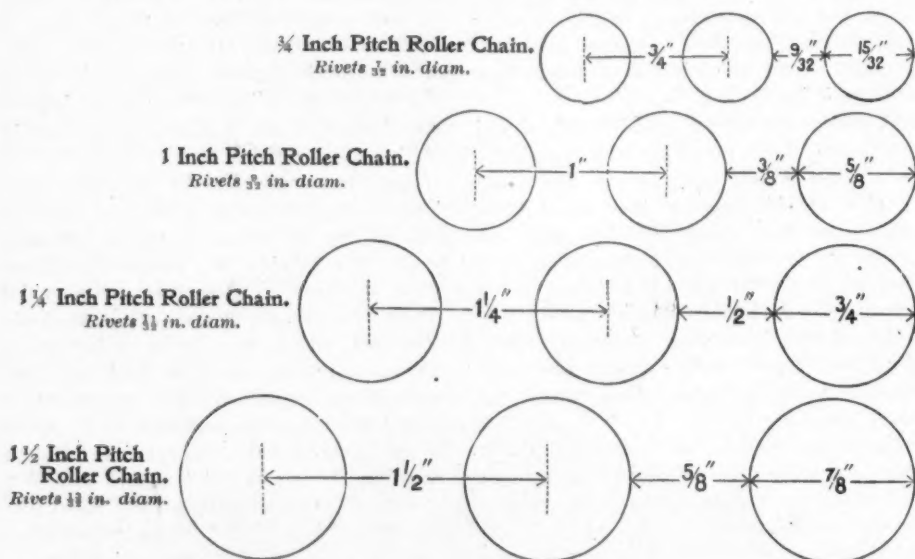
purpose, though it is doubtful if many of them are built with the care and skillful workmanship lavished on some of those built by the larger manufacturers for their own use.

The carbureter is, of course, a much more simple matter of construction than the motor, particularly if the type generally known as a mixer is used, and can be readily built by any thorough workman possessed of a good lathe. However simple, though, this part of the apparatus may appear, it must not be supposed that the design will not require the most careful consideration, for of the many carbureters the

mixing devices on the market comparatively few are even fairly satisfactory.

The muffler is probably the most easily constructed of all the appurtenances of the motor cycle, but in designing it care must be given to avoiding severe back pressure. It is easy to construct a muffler that will almost entirely silence the exhaust, but the designer is extremely liable to find the power of his motor seriously reduced owing to the back pressure caused by too suddenly retarding the escape of the exhaust vapors. The style of muffler in most general use is some variation of the style shown in the accompanying illustration, a popular

STANDARDS IN CHAIN MANUFACTURE



The Whitney Mfg. Co., of Hartford, Conn., is endeavoring to establish a standard in roller chains for automobiles. The company's $\frac{3}{4}$ -inch chain has the same sized roller that is used in chains of certain other standards, and will therefore interchange on sprockets which has been cut for other $\frac{3}{4}$ -inch chains. All the Whitney roller chains of 1-inch pitch and over have, it is claimed, larger rollers, bushings and rivets than other chains on the market, and provide for sprocket teeth in each case sufficiently thick. The company maintains that there is no advantage in having thicker sprocket teeth than are needed for their chains, and that

there is great gain in wearing qualities in the use of large rolls and rivets. The side plates of the Whitney chain have projecting points, which hold the chain upright on the sprocket and force the teeth to bed squarely and smoothly into the openings between the blocks and rollers. They also help the chain to run smoothly when the sprockets are out of line, and prevent jumping. The illustrations show the dimensions of the rollers of the Whitney chain in the various pitches in common use, to which, of course, the Whitney company would be pleased to have others conform.

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form consisting of a series of nested tube with the perforations along one side of each, and the tubes so placed that the perforations of each are opposite those of the succeeding tube. The point to be borne in mind is that in no case must the total area of the outlets from any chamber of the muffler be less than the area of the opening of the exhaust valve, but should rather gradually increase. The idea to be followed is to break up the volume of the discharge into a myriad of small waves rather than to retard the escape of the gas.

In the matter of general construction the inexperienced designer is liable to err in the direction of lightness rather than overweight. Owing to the necessary hardness of the tires and the speed indulged in by riders the jarring effect is severe and all nuts and bolts should be sufficiently large and strong to stand the application of a powerful wrench without danger of stripping the threads.

Above everything else avoid the use of sweated joints in the piping. While a neat finish may be gained in this way the eventual disruption of the joints is inevitable. To insure the avoidance of trouble all piping joints and connections should be hard-soldered as no matter how well the work may be done with the ordinary half-and-half, leakages are sure to occur sooner or later and generally at a time when the rider is unable to remedy them. In the construction of tanks all seams should be double lapped and heavily soldered. Gasoline is a wonderfully insinuating fluid and will escape through openings of infinitesimal dimensions taking with it large chunks of the reputation of the maker.

A point overlooked by many manufacturers is the lubrication of the engine. A favorite method is the introduction of a measured quantity of oil in the crank case. While this is a means of lubrication common to a number of European motors it leaves much to be desired, as the amount of oil inserted at any one time is insufficient for a great distance and on starting on a long trip the rider is compelled to carry a separate flask of oil or take doubtful chances of obtaining a supply on the road. A far better plan is a drip feed, connected with an oil tank and so located that the flow may be regulated by the rider from the seat.

A system found very satisfactory by one manufacturer is a wick feed, handily regulated from the seat and feeding directly to the cylinder and on the piston at its outward stroke. By this means the cylinder is always kept well lubricated and sufficient oil is fed into the crank case to supply the bearings of the shaft and connecting rod. The tank carries a supply sufficient for several hundred miles.

Much has been said in regard to the location of the motor, some advocating placing it high and others the contrary, but as is often the case a conservative medium has been found to be the most satisfactory. If the motor is placed too high it is liable to be in the rider's way and the machine tends to top heaviness when it is necessary to move it by hand. Troubles, far more serious, are found if the motor is placed too low, as the machine is liable to skid when turning a corner on a slippery road. Many a serious fall has been caused in this way. The motor is also subject to the dust and dirt and if the road is wet is apt to become covered, the mud baking from the heat of the cylinder, causing overheating and perhaps stopping of the motor. The location of the motor most generally adopted by American manufacturers is in the forward part of the frame with the gravital center nearly midway between the saddle and the ground and as far forward as possible, so that the weight of machine and rider is properly divided between the front and rear wheels.

The transmission of power from the motor to the driving wheel is a matter almost certain to bring gray hairs to the head of the inexperienced. The chain is, in many cases of power transmission, the ideal method, but the conditions to be met render it of doubtful utility. Owing to the lack of counter shafts and gearing to, at least in a measure, absorb the excessive force of the strokes of the motor breakages are frequent and the wear on the tires is so great as to be destructive. In addition to this, if the motor is at all powerful the jolting of the machine is almost unbearable.

The trinity of faults to which the belt is addicted is slipping, stretching and breaking. They are equally conducive to profanity or at least an inclination in that direction. The past season's experience has,

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however, taught the manufacturers much in this direction, and it is fair to assume that the belts on next year's produce will be beyond comparison with those which the pioneer motocyclists have had to contend.

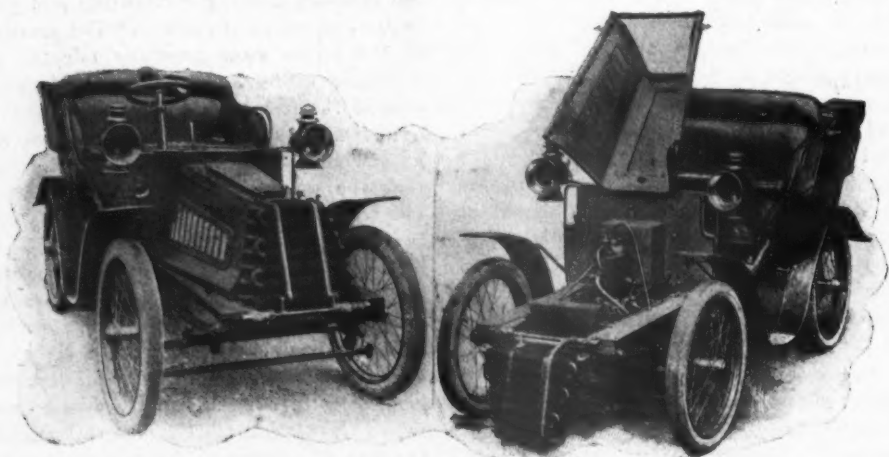
While there is no doubt that there will be many new motorcycles on the market next season, many of which will fall by the wayside, it is safe to predict a boom in this industry and the manufacturer of a successful machine will find a ready sale

for all he can build. It is to be hoped, however, that no one will enter the lists without carefully considering the situation and proving the utility of his machine before attempting to place it on the market, for, as said before, the building of a motor bicycle is to be in no way compared with the construction of the manually propelled machine, many of which have been built in shops whose principal equipment consisted of a brazing torch and a work bench.

THE HUMBER LIGHT CAR

One of the most cleverly designed light rigs on the English market is the Humber. A feature of this carriage is the ready susceptibility of the motor and appurtenances. The motor is a $6\frac{1}{2}$ -horsepower Aster, is located over the front axle and the cylinder head and accessories are covered by a bonnet. The radiator for cooling the water is located in front of the bonnet and is connected with the water tank and engine by

means of flexible unions so that it may be swung forward, after which the bonnet is swung back over the front of the body, leaving the motor entirely exposed. In addition to this attractive feature the carriage is gear driven throughout with three speeds forward and a reverse. The body is of the popular tonneau type and is finished in a style befitting the reputation of the manufacturers.



TIME TO CALL A HALT

The automobile has demonstrated that it is not a thing to be played with by incompetent persons. A vehicle weighing anywhere from 700 pounds to 2 tons, propelled by a motor capable of doing the work of a dozen horses, is a thing capable of working fearful havoc in the hands of a careless or ignorant operator. Too many people of that class are permitted to use them and, unfortunately, there seems to be no means of checking them.

It is not the custom of MOTOR AGE to dwell upon automobile accidents. The daily papers are too willing to do that and to supply all the harrowing details, too often grossly exaggerated, the most morbid can desire. But it is time to call a halt, to round up the incompetents and ascertain the cause of the frequent spills which have occurred of late. Here is a brief summary of a week's troubles:

J. G. Smith, of St. Paul, dislocated shoulder, and his wife badly bruised, due to the breakage of an axle while they were hurrying to a depot. Car tracks were partly to blame.

Fire and loss of about \$10,000 through the filling of gasoline tanks of steam vehicles by lamp light at the Mobile barn in Buffalo.

Runaway and smash-up, fortunately not attended by serious injury, due to automobile running at high speed at Indianapolis.

At Schenectady a broken steering lever made it impossible to control machine; which ran into a curb and turned completely over. Operator and two ladies bruised.

Machine owned by R. P. Grant, of Fitchburg, Mass., became unmanageable while going down hill. Half a dozen people hurt.

Small boy run down at Portland, Me., resulting in a broken leg, and dislocated bones in his right hand.

A machine turned over backward on one of the Kansas City hills, the two occupants being slightly bruised.

A man named Burt, at Youngstown, Ohio, traveling at great speed, applied the brake suddenly, the machine skidded, struck the

curb and was almost demolished. Happily nobody hurt seriously.

An operator at Paterson while standing at the side of a machine, caught the lever on his coat, started the machine and the woman occupant was rendered unconscious by a collision with a brick wall.

Albert Champion thrown from motor cycle and seriously hurt at Yonkers, N. Y.

Fournier and three companions hurt, three of them seriously, by collision with an engine on the Long Island railroad.

This list does not include a number of minor affairs such as runaways, scorched fingers and the like.

In a few of the cases reported the fault may have been with the machines. In a great majority they were, and always are, due to sheer stupidity and carelessness on the part of the men handling them. Nine accidents out of ten are due to the fact that the men who own the machines are in too great a hurry to take reasonable precautions. Machines are put into barns and taken out again day after day without examination. They are not given credit for performing such arduous duties as never fall to the lot of ordinary carriages, or even locomotives. They are bumped without ceremony or mercy over the vilest thoroughfares, and yet the owners seem to take no trouble to overhaul them, being content to take such chances of a smash such as occurs with such alarming frequency.

There is justice in the public outcry about the recklessness of some automobilists. Despite warnings, laws, fines and what not, they continue to accept risks for themselves and to imperil the lives of others. They ask for the protection of automobilists' rights and disregard those of other people with impunity. They forget that the man who doesn't own an automobile and who still cherishes the idea that he and his horses have some rights on the road is entitled to a certain amount of consideration and that the order of things which has prevailed for hundreds of years cannot be off-set in a day or a year.

There are people who believe that the speed regulations are wrong; that they

TIME TO CALL A HALT.

should be so changed as to make it a criminal offence to drive to the common danger, allowing the machines to travel as fast as the owners please on safe stretches of road. But how can such a state of affairs ever be brought about while the owners of machines tear along crowded streets, trusting to the weight of their machines for personal protection in case of a collision?

Two classes of operators cause trouble, the incompetents and the criminally careless. The former can be taught. They should not be allowed by the law to operate vehicles until they have been taught. But the reckless man is harder to deal with. We have frequently seen men take corners at high speed with the certainty before them that, should a team or other obstruction be met, nothing on earth could avert an accident. We have seen them take crowded thoroughfares with the same reckless disregard of their own and other people's safety. And still we grumble when some case of over-officiousness on the part of the police occurs.

Automobiles should not be considered as machines whose primary object is to enable their owners to travel from post to post at the highest possible speed. There is no other excuse for great speed in cities than the "sporty" desire of the operator to show someone else how fast he can travel. Automobiles are not used for the transaction of business which requires great haste. They are driven fast simply for amusement. No one has the right to use them to the common danger.

If the present condition continues, in view of the fact that the number of machines in use will probably double in the next year, where are we to land? Will anything be safe on the highway? Something must be done to stop the foolhardy practices of the scorchers.

The manufacturers will suffer. The trade will not long survive such a chapter of accidents as that related above, especially if it occurs with as great regularity as has been the case lately. But what is the maker to do? He cannot cut down the speed of his vehicle. If he does no one will buy it. He can only wait and hope that in the course of time buyers will develop the brains given them and conclude, for their own sakes and for that of others, to be

rational or that the law will be strictly enforced.

MOTOR AGE is well aware that so outspoken an article will not be regarded with favor by some of its readers. But it is well, nevertheless, for the public to know that not all of the men who own and operate machines are in the same class. The sentiment of the great majority of rational users of automobiles is against fool-hardiness. They believe that racing should be conducted only under proper restrictions and in proper places. The Automobile Club of America is on record as being opposed to infraction of the law. The example should be followed by other clubs and severe punishment, even extending to expulsion, should follow repeated offenses by members. By radical methods only can some of the offenders be brought to their senses.

Items of Commercial Interest

The South Jersey Mobile Co. has been organized at Bridgeton, N. J. It has a capital stock of \$100,000. The incorporators are John Hummell, Edwin R. Laning and Eugene L. Laning, all of Bridgeton. The charter permits the company to operate lines of passenger automobile stages in Cumberland, Cape May, Atlantic and Salem Counties. The first to be established will be between Bridgeton and Salem.

The Cloughley Automobile Co., of Cherryvale, Kan., has asked the Chamber of Commerce of Los Angeles whether it can organize a company there with capital of from \$50,000 to \$100,000. For this modest sum it promises to establish a branch in the California city. The same company is negotiating with people in Topeka, Kan., who seem favorably impressed with the proposition made them.

A meeting was held last week between J. C. Reuter of Davenport, Ia., and the village trustees of Peoria Heights, Ill., for the purpose of discussing the establishment of an automobile factory. Mr. Reuter made an offer to build a factory and employ fifty men at the start if the trustees would give him 3 acres of ground and guarantee a switch, both of which they agreed to do.

A receiver has been appointed for the Hasbrouck Motor Co., of Piermont, N. Y., which made gasoline motors. The company started business in January, 1899,

CHAIN TRANSMISSION OF POWER IS SATISFACTORY

ONLY when frictional rivet surface and tensile strength are large in proportion to the working load.



NO. 153 FOR LIGHT RUNABOUTS

Equip your machines with large chains and avoid trouble.

Diamond Chains have large nickel steel hard rivets, are accurate and highly finished.

The Automobile and Cycle Parts Co.

DIAMOND CHAIN FACTORY
INDIANAPOLIS, IND.

with a capital of \$10,000 and did business at that time in Newark, N. J. The creditor in whose behalf the receiver was appointed has a judgment of \$66, obtained last July.

A year ago the Badeker Gas Engine Co. was organized at Omaha to make automobiles under patents issued to Dalton Risley. The intervening time has been spent in developing the machine but it is announced that the company will be ready to commence the manufacture of vehicles for the market within a week or two.

The information has been given out in Elizabethport, N. J., where the Riker factory is located, that although the machines will be made hereafter at Hartford, Mr. Riker and several men will continue an experimental shop at the old stand.

A contract has been made with the National Sewing Machine Co., of Belvidere, Ill., by the Friedman Automobile Co., of Chicago, to build a number of machines of the Friedman design. The number in the first order is said to be 525.

The Hercules Motor Co., of New York,

has gone into the hands of a receiver after a precarious existence of about 18 months. The company has assets in New York valued at about \$5,500.

The Keating plant, at Middletown, N. Y., has finally been sold to Isaac E. Gates and a number of New Yorkers. It has been in the hands of a receiver for the last 2 years.

The plant of the Detroit Motor Works will be moved from its home city to Port Huron. The company will be reorganized under the name of the Hardy Motor Works.

A. L. Le Latchen, care of W. H. Thorne & Co., St. John, N. B., is interested in gasoline motors and would like to have catalogues sent him.

G. R. Albaugh, 242 Field avenue, Detroit, and W. S. Nitschke, 133 Lemos street, Buffalo, are prospective buyers of motor cycles.

F. G. Vaucher, 213 N. Fourth street, St. Louis, is in the market for a set of parts for a gasoline vehicle.

The Ohio Automobile Co. is erecting an addition to its buildings, 100x60 feet in size.

ADVERTISEMENTS.

A neat, trim carriage, containing more exclusive and special features than any other steam carriage on the market. Strong, serviceable and durable. Best of workmanship throughout.

"Toledo" Steam Carriage

SPECIFICATIONS:

Style, Model A.

Engine, Oil encased, 3-in. x 4-in. piston valves.

Boiler water tube.

Burner 19 in., with pilot light attached.

Water Tank, copper, holding 31 gallons.

Gasoline Tanks, two, of copper, holding $4\frac{1}{2}$ gallons each.

Air Tank, copper, tested 200 pounds pressure.

Water pump, new design, attached to engine cross head.

Hand Water Pump, in combination with steering lever.

Air Pump, new design, automatic, attached to engine cross head.

Throttle Lever, in combination with reverse lever.

Steering lever, non-vibrating, center steering. Gear, best seamless tubing, $1\frac{1}{4}$ inches diameter.

Wheels, 28 inches by 3 inches, single tube.

Upholstering, best grade hand buffed leather.

Seats, solid panels. Accessories, lamps, bells, cyclometer, lock for throttle and tools.



MODEL A

Price \$900. Send for "Toledo" Booklet. Sent free upon application.

AMERICAN BICYCLE COMPANY, (AUTOMOBILE DEPARTMENT) Toledo, Ohio
New York Branch, 91 Fifth Avenue.



THE GOODYEAR
PUNCTURE PROOF TIRE

OUTWEARS

ALL OTHERS

The Goodyear Tire and Rubber Co.

AKRON, OHIO.

LARGEST TIRE MAKERS IN THE WORLD

CYCLE SPORT AND TRADE

A month ago this paper announced exclusively the withdrawal of the Snyder company from an agreement entered into with other independent makers of bicycles and the consummation of an agreement with the American Bicycle Co. to allow it to take a decree of infringement of the Smith bottom bracket patent. Within a few days the case of the A. B. C. against Crosby came up for hearing at Buffalo. The court ordered a continuance, to allow the defendant to make application to Judge Coxe, of Utica, before whom the Snyder case was commenced, to be allowed to substitute the case of Crosby for that of Snyder, on the ground that Crosby and others, having contributed to the fund for the defense of the Snyder suit, were party defendants and as such entitled to the use of the evidence taken in that case. The case came up before Judge Coxe on November 12 on the occasion of the hearing of the complainant's motion to enter a consent decree against the H. P. Snyder Mfg. Co., thereby to perfect the settlement of the suit as against that company, which it had secretly arranged with the A. B. C.

The motion was urged by William A. Redding on behalf of the complainant. Wm. H. Dryenforth opposed it on behalf of all the parties, except, of course, the H. P. Snyder Mfg. Co., interested in the defense, who originally as members of the Cycle Trades Protective Association contributed toward defraying the expense of conducting it and particularly on behalf of Iver Johnson's Arms & Cycle Works, the Crosby Co., National Sewing Machine Co., and Toledo Metal Wheel Works, who, when the treasury of the Cycle Trades Protective Association became exhausted last winter, entered into a contract with the H. P. Snyder Mfg. Co. to stand together and fight the case to a finish.

Judge Coxe overruled the motion, refused to enter the decree, ordered that the case proceed with the evidence already taken in behalf of all the parties interested in the defense who have contributed toward defraying the expense of conducting it, and

that the Crosby company be added to the record as an intervening defendant.

Judge Coxe based his ruling in this case upon the well-settled principle that "parties in a suit include not only those whose names appear upon the record, but all others who participate in the litigation, by employing counsel, by contributing toward the expenses and who in any manner direct the course of the proceedings."

The disposition by Judge Coxe of this motion has also, it seems, practically disposed of the pending motion before Judge Hazel at Buffalo on behalf of the Crosby company to be relieved from the necessity of taking testimony in the suit brought against it last summer by the A. B. C. for infringement of this same bottom-bracket patent. That suit will now be held in abeyance pending the termination of the suit at Utica.

The defendants' attorney took advantage of the opportunity presented at the hearing of this motion at Utica, to present to the court a motion for a rule on Mr. Redding to produce for use in the Snyder suit the testimony and exhibits that were adduced in the former suit on the bottom-bracket patent of Owen vs. Pope Mfg. Co., before Judge Townsend at Hartford, Conn., but which was discontinued, all the evidence in that suit being suppressed and having come into the possession of Mr. Redding when the patent was bought by the A. B. C. Judge Coxe granted the motion as to certain exhibits specified in it, with leave to renew the motion for the production of more of the suppressed evidence upon showing it to be material to the issues in the suit against the H. P. Snyder Mfg. Co.

Exports of Bicycles

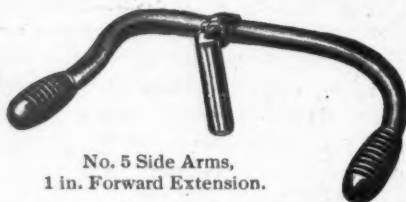
New York, N. Y., Nov. 14.—The following are the exports of bicycles and parts from the port of New York, for the week just ended: Antwerp, materials, \$75; Amsterdam, velocipedes, \$32; British Possessions in Africa, bicycles, \$307; British Guiana, materials, \$51; British East Indies, materials, \$874; Bremen, materials, \$133; Brazil, velocipede, \$25; British Australia, bicycles

1902 Kelly Adjustable Handle Bars

STANDARD BARS OF THE WORLD



No. 3 Arms, Regular Stem.



No. 5 Side Arms,
1 in. Forward Extension.



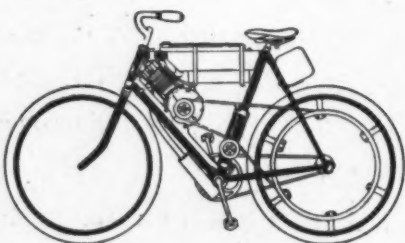
No. 4 Racing Arms,
2 1/4 in Forward Extension

It will pay all manufacturers these times when competition is hot, to see that their wheels are equipped with just the attachments demanded by the rider. Every rider knows the merits of KELLY BARS, as they have been for the past six years the most popular and foremost sundry in the cycle trade.

The Kelly HandleBar Co. CLEVELAND, O. U. S. A.

The Sun Never Sets on the

AUTO-BI



Go to any country you will in this world—Go through the United States and Canada—Go to Mexico, Yucatan, Cuba, Porto Rica, Bermuda, Trinidad, Hawaiian Islands, Great Britain, Netherlands, Holland, Russia, Germany, France, So. Africa, India, Japan, China, Java, Strait Settlement, New Zealand—all of the Australias—travel in any of these countries and you will find the **AUTO-BI**.

When you are asked for the best Motor Bicycle you know, what to reply. The above is some of the evidence.

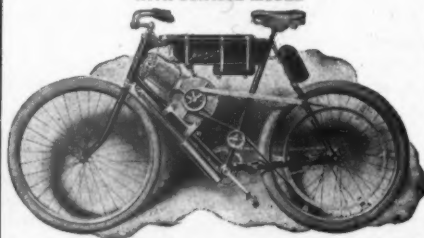
AUTO-BI COMPANY,

106 Broadway, - - - Buffalo, N. Y

We Use Thomas Motors Exclusively.

WE ARE NOW READY

WITH OUR 1902 MODEL



Mitchell Motorcycle

Improvements:

The Driving Pulley is now made "V" shape to accommodate round belts. Valve Lifter—A lever is now provided convenient to the right hand, by which the valve may be opened at any time. Speed Lever is also located convenient to the right hand. Ball Bearing Idler reduces friction. Twisted Rawhide Belt, guaranteed non-breakable and non-stretchable.

WISCONSIN WHEEL WORKS,

Dept. M Racine Junction,

Wisconsin

and materials, \$6792; British West Indies, bicycles and materials, \$102; Chili, bicycles and materials, \$6,792; British West Indies, \$102; Cuba, material, \$393; Copenhagen, material, \$3,603; Glasgow, material, \$90; Glasgow, bicycle, \$25; Glasgow, material, \$1,280; Hamburg, bicycles, \$60; Hamburg, material, \$289; Havre, material, \$1,945; Havre, bicycles, \$75; Hango, bicycles, \$75; London, bicycles, \$1,150; London, bicycles, \$6,769; Lisbon, material, \$114; Liverpool, bicycles, \$574; Peru, bicycles and materials, \$189; Rotterdam, bicycles and materials, \$533; Rotterdam, bicycles and materials, \$27; Southampton, bicycles and materials, \$3,256; Turin, bicycles and material, \$1,528; Uruguay, bicycles and material, \$184; Warborg, bicycles and material, \$440.

Arrival of Foreign Riders

New York, Nov. 17.—The foreign cyclists who are to take part in the six-day race at Madison Square Garden arrived yesterday. The teams were selected by Floyd McFarland, who is now in England endeavoring to select a team of English riders. The men will be placed in charge of John West and taken to the Berkeley Oval where training quarters have been secured for them.

Among the Cycle Makers

Replying to the letter referred to last week and to which a number of other cycle makers have already sent replies, the George N. Pierce Co., of Buffalo, announces that it will be in the trade as strongly as ever, but is not yet quite ready to make an announcement as to the improvements to be made in its machines. "We do not anticipate the adoption of any new or radical ideas," says The Iver Johnson company. "Our concern has always been conservative and this will be continued. We have three men on the road and before the first of next month five more will be started. They will cover the territory from Maine to California and from Canada to New Orleans. Our list prices will be similar to last season."

Eagle Bicycle Co.: "We are not now prepared to make any announcement further than to state that we shall offer a complete line of chain bicycles in juvenile as well as men's and women's machines in all grades at popular prices. We have in-

That the **MOTOR AGE's** second annual Directory, which is to form a part of the Christmas issue, will fill a want of the trade is shown by the number of communications concerning it received during the week. The first announcement concerning it was made a week ago and already more than 250 concerns have supplied the information asked for.

Makers who have not already done so are invited to forward details of all the goods they manufacture. A suitable form will be provided for those who ask for it, containing a list of the articles which it is intended to classify.

There will be no extra charge to subscribers or to those whose advertisements appear in the issue. To others the charge for the directory number will be \$1.00.

MOTOR AGE.

Monon Bldg.

CHICAGO

CYCLE SPORT AND TRADE.

troduced features in construction that will appeal to the bicycle merchant and mechanic. The features referred to are patented and belong exclusively to this company."

Warwick Cycle & Automobile Co.: "We are still in the cycle trade as manufacturers. Our line will contain four models of chain wheels, ranging in price from \$35 to \$50, and a motor cycle which will list at \$200. We shall make automobiles of two or three styles."

Wisconsin Wheel Works:—This company has ready for distribution its catalog No. 9, devoted to models for 1902. There are few changes from the very successful line of last season. There are no radical changes in the motor cycle, the variations being in the line of additions rather than alterations. The most noticeable are a lever for lifting the exhaust valve when starting or coasting with the motor out and a lever conveniently located near the handlebar for regulating the sparker. This is a marked improvement, particularly for the beginner. A feature sure to be favorably received is the new belt of twisted rawhide, practically an endless rope, described in the *MOTOR AGE* some time since as the design of a Chicago man who knew from experience what was required of a motor cycle belt. Minor details, yet conducive to the convenience of the user, are a needle valve in the outlet from the gasoline tank for cutting off the feed to the mixer and the introduction of ball bearings in the idler for maintaining the proper tension in the belt.

S. F. Heath, sales manager of the Wisconsin company, states that the factory is now running, at least 6 weeks earlier than last year, and that orders average much larger and earlier from the retail trade.

Test of an Auto-Tri

The E. R. Thomas Co. has received details of an extraordinary test of one of its tricycles in Japan, where, to judge from the description given, some of the roads are as bad as those discovered on the late endurance test. The letter came from B. Abenheim, of Yokohama, who says: "We went to a place called Nachiogi, 36 miles in the mountains. There were seven riders on wrong turning and had to double back, costing me 2 miles. I lost my companions through this and had to fight it out alone.

Well, you have roads in America and from the reports of the 500-mile test pretty bad ones, but what I went over was slow moving glaciers of mud. Where there was not mud it was new shingle and with ruts 8 inches wider than your machine tracks, so that when one wheel struck bottom the other was twice its height in the air. Well, I bicycled and I rode your tricycle. I made a worked as I never expected to and at points used to dismount to save the machine in the bad places, but being human, could not keep it up, and later only dismounted for mud rivers. I took gravel hills, mud levels and rutted down grades in desperation as I thought it was all up anyway. Had a spill at the bottom of the second hill in 8 inches of mud with the machine throwing somersaults in a field; nothing wrong except a twisted handle bar which was soon straightened. Around noon I was beginning to be played out, but kept the thing going and then had the climax bit of road. All three wheels were in mud and the pedals were ploughing a furrow. I pushed and pushed, making 50 feet in half an hour. Got through at last all covered with mud, mounted, and to my astonishment, off she went. A little further on I hit a big cart with the off rear wheel, but the cart went spinning away and not so much as a bent axle was the result.

Well, she had stood up to that so I pushed her all I could, arriving at 3 p. m. pretty well busted. I did not see the machine since then until when I began to write you. It was sent to town by freight and stayed a day in a freight shed on account of rain. I then went for it and rode it 2 hours and going as it did with no brake band or any part out of order is a test that is so magnificent that I have taken the time to write you personally."

Members of the national assembly of the League of American Wheelmen have been notified that the annual meeting will occur at Torrington, Conn., in February, the exact date to be announced by the secretary in a few days.

The Victor bicycle has finally left the market. Last year the Stevens Arms Co. made it in a half-hearted way, but, having taken up the Duryea automobile, has decided to abandon bicycles entirely.

Albert L. Pope, son of Col. A. A. Pope,

CYCLE SPORT AND TRADE.

THE LONG DISTANCE TIRE



NEW YORK
THE LONG DISTANCE TIRE

Delays, discomforts, annoyances eliminated. Long or short journeys on business or pleasure anticipated without anxiety and accomplished without mishap when equipped with

The Long Distance Tire

The most reliable tire on the market. No other gives such satisfying service. Constructed on a simple sensible principle. The clock face shows a cross section of the tire. Have your dealer or manufacturer of carriage or automobile put it on your vehicle, or write to us for it or about it.

NEW YORK BELTING & PACKING CO., Ltd.,
Chicago

NEW YORK . . . 35 Park Place	CHICAGO . . . 150 Lake St.
BOSTON . . . 94 Summer St.	INDIANAPOLIS . . . 309 S. Meriden St.
PHILADELPHIA . . . 724 Chestnut St.	ST. LOUIS . . . 411 N. Third St.
BALTIMORE . . . 101 Hopkins Place	SAN FRANCISCO . . . 509-511 Market St.

MISCELLANEOUS

Advertisements under this head 5 cents per word first insertion; 3 cents per word each insertion thereafter. Cash with order. Express orders, postoffice orders or stamps received.

FOR SALE

FOR SALE—New Cleveland Motor Bicycle, cheap. R. J. HUGHES, Wahpeton, N. Dak. 1

FOR SALE—Gun and Bicycle Store. Splendid opening for live man. R. J. HUGHES, Wahpeton, North Dakota. 1

FOR SALE—Second-Hand Steam, Gasoline, Electric vehicles. Guaranteed. A. L. DYKE, Linmar bldg., St. Louis, Mo. *

FOR SALE—The Automobile Storage and Repair Co., 57 West 68th St., New York, have new and second-hand steam, gasoline, and electric carriages constantly on hand and have always some special bargains. *

FOR SALE—One 4 h. p. Gasoline Twin Cylinder Automobile Motor, water cooled; used in our factory for power a month; must have more horsepower; in perfect condition; only \$100. Write soon. H. L. HOFFMAN MOTOR CO., Plainfield, Ill. 2

BICYCLE MOTORS—We have on hand five first-class 1 1/4 horsepower bicycle motors Aluminum crank case, phosphor bronze bearings and highest quality of workmanship. Will be sold at a sacrifice, either singly or as a lot. C. M., care MOTOR AGE. *

MISCELLANEOUS—Are you having trouble with your jump spark ignition? I make this form a specialty and can help you. Have used all makes of coils, etc., and know from experience what is reliable. No guess work. Charges reasonable. Address, M. P., care MOTOR AGE. 1

FOR SALE—2 Mobiles, Victoria top, latest patterns, 300 and 500 miles service, good as new not a scratch, \$500 and \$600; 2 Milwaukee steam, top, etc., latest models, \$550; also Milwaukee surrey, 230 miles, not a scratch, \$750; 1 1901 Winton, perfect order, \$800; 1 Knox Runabout, A1 shape, \$500; 20 other bargains. FISHER CYCLE AND AUTOMOBILE CO., Indianapolis, Ind. 3

who formerly had charge of the Columbia bicycle factory at Hartford, has been thrown so completely out of the cycle trade by the late changes in affairs of the A. B. C. that he has concluded to stay out and go into the stock broking business in New York.

The police commissioners of Meriden, Conn., recently sent a committee to Hartford to inspect the automobiles used in the police service there. They expect to introduce at least one vehicle in Meriden during the early part of next year.

It is reported, apparently with authority, that the American Bicycle Co. will close its Syracuse factory as soon as the machines in process of construction there can be prepared for shipment.

Samuel F. Lever has been appointed receiver for the New Jersey Automobile Co., on the application of Frederick G. Hodge, president, who stated that the company is insolvent.

This Chicago city council has instructed the police department to take steps "to regulate the speed of automobiles."

Wabash Railroad Arrangements

The Wabash will sell Thanksgiving excursion tickets from Chicago to St. Louis and return for \$5 for the round trip, good going on all trains of November 27. Three handsome daily trains. A postal card will secure particulars. Ticket office, 97 Adams street, Chicago.

Commencing November 17, the Wabash road will run a daily sleeper from Chicago to Hot Springs, Ark., without change, leaving Chicago on the fast day express at 11:03 a. m., and reaching Hot Springs next morning at 8:00 o'clock. Write for illustrated booklet, giving full particulars. Ticket office, 97 Adams street, Chicago.

The Wabash road has placed in service on its fast day trains between Chicago and St. Louis handsome new observation library cars. Meals are served a la carte. Train leaves Chicago at 11:03 a. m. daily and arrives St. Louis 6:42 p. m. Ticket office 97 Adams street, Chicago.

FROM CORRESPONDENTS

St. Paul, Minn., Nov. 15.—To the Editor: Why could not the carbureter and muffler described in the August 1 issue be made entirely of aluminum, except needle valve? It appears to me this would be the proper material as it is desirable to have them light as possible. What effect does gasoline have on pure cast aluminum in regard to corrosion or forming of verdgris?—Yours, etc., Geo. E. Boston.

The only objections to making the articles of aluminum are the much greater cost of the castings and the unpleasantness of working the metal. The ends of the muffler might be made of aluminum, but there is, so far as we are aware, no tubing of that metal on the market, and to use sheet metal with riveted seams would certainly not improve the appearance of the finished article. As to the saving in weight, in neither case is the article of sufficient bulk of metal for it to be of much consequence.—Ed.

Some Further Experiences

Houston, Tex., Nov. 16.—To the Editor: I have a steam machine and had left it standing several hours in front of my office. The pump cock was left turned on and when the steam went down the boiler syphoned full of water. This, in some way, extinguished the pilot light in the Kelly generator. I turned on the main fire and did not discover, for probably a minute, that it had failed to ignite the main burner. I then turned off the main fire, but did not wait long enough for the gasoline to evaporate. A match was applied to the pilot light and of course the entire rear end of the magnified with the aid of some coffee sacks chine was soon in a blaze. It was extinguished and a small Babcock fire extinguisher. The wood work under the seat was somewhat burned and I lost some paint off the back of the rig. This particular accident will not happen to my machine again, so long as it is in my hands.

I have had some trouble with dirty gasoline when on the road. It is not always possible to get a strainer and dirt will occasionally get in from careless handling.

To avoid this I have suggested to the makers to put a strainer in the gasoline tank. The outer covering of the strainer is made of some strong material and fitted to fill the opening of the tank and extend to the bottom. Inside a strainer is placed to fit snugly, but it can be removed when necessary. I believe such an arrangement will prevent the gasoline tube from ever becoming clogged and will obviate the necessity of carrying a strainer funnel.—Yours, etc., R. W. Knox.

How to Figure Horsepower

Plainfield, Ill., Nov. 15.—To the Editor: As we wish to have the best authority as to the best method of applying a brake to a gasoline engine we take the liberty to write you. We are using what is called the prony brake.—Yours, etc., H. L. Hoffman Motor Co.

Hardly a week passes without a similar question. Of several simple and easily applied tests those most commonly used are known as brake tests. In one of these what is commonly known as a prony brake is used. There are, however, several objections to this method, one of the main difficulties usually encountered being the heating of the brake and the difficulty of assuring a steady and regular pressure. A more easily applied method is by using in lieu of the prony brake one or more strands of hemp cord, in a method to be described. In either case the brake may be applied either to the fly wheel of the engine or to a flat faced pulley, which may be temporarily secured to the motor-shaft. In using the cord-brake one end of it should be secured to a spring-balance, which may be attached to the floor, or at any convenient place below the motor-shaft. From here the cord passes over the upper semi-circumference of the wheel to which the test is applied. To the free end of the cord to be attached a hook, to which no weights may be hung. It is advisable that a cord or connection of some sort be made between this hook and the floor so that the weights will be prevented from being thrown over the wheel should the engine be started too

FROM CORRESPONDENTS.

quickly, or the speed suddenly increased. The apparatus being thus arranged in such a manner that the direction of rotation of the wheel is from the weighted end of the brake, that is, so it tends to lift the weight, the engine should be started and as the normal speed of the engine is reached the weight should be increased to the heaviest point that the engine is capable of standing without reduction in its speed. Having ascertained the maximum weight within the capacity of the engine, the following data is used as the basis from which the horsepower is figured:

B. Weight indicated on balance.

W. Total weight on the brake, which should include in addition to the testing weight, the weight of the hook and all paraphernalia on that side not in contact with the wheel.

C. Circumference of the wheel in feet.

R. Revolutions of the wheel per minute.

From this data the following formula is used:

$$\frac{C \times R \times (W - B)}{33,000} \text{ B. H. P.}$$

For example, to take a supposititious case, let us assume that the engine runs at 800 revolutions per minute, the weight on the brake 125 pounds, the pulls shown by the spring balance seven pounds, the circumference of the testing wheel two feet, based on this the calculation becomes, from the above formula:

$$\frac{2 \times 800 \times (125 - 7)}{33,000} 5.9$$

Thus the engine at a speed of 800 revolutions per minute is shown to have developed 5.9-10 horse-power.

Relates His Experience

Chicago, Nov. 18.—To the Editor: The department in your paper devoted to the experiences of drivers of automobiles is one of the most interesting to me, and I believe to others who are daily becoming interested in automobiling, owing to the great scope it affords for picking up valuable pointers which may be of service to less experienced drivers, although it is the writer's opinion that no matter how much may be said dealing with the handling of motors of the various types, actual experiences will be necessary before any individual will become proficient, no matter what the machine with which he has cast his lot. Nevertheless, hints given may be of service

Waverley Electric Vehicles

These carriages meet the demand for light, comfortable, handsome vehicles at a low price. In the runabout shown herewith, we have succeeded in combining all these characteristics without reducing in the least the mechanical standard it has always been our aim to hold.



Model No. 21. Weight 1,000 lbs.

DESCRIPTION:

BODY.—Piano box pattern; length 5 feet, 10 inches; width 2 feet, 3 inches; height from ground 25 inches.

UPHOLSTERING.—Handsomely finished in dark green leather.

WHEELS.—30 inches diameter; wire spokes; 2½-inch pneumatic tires.

MOTOR.—The motor is of a new and improved design, of a normal capacity of 2 H. P., capable of an overload of 2 H. P. additional. Speed from 5 to 17 miles per hour.

GEARING.—The gearing is of the "hering-bone" type, protected in dust-proof cases and runs in oil.

INSTRUMENTS.—Each vehicle is equipped with a combination volt and ammeter.

BATTERY.—The Sperry Battery is used; weight 360 pounds.

RHEOSTAT.—An extra charge of \$25.00 will be made for Reostat for charging battery.

PRICE **\$850**

WAVERLEY AUTOMOBILE DEPT.

American Bicycle Company,

Indianapolis, Ind.

NEW YORK BRANCH, 91 FIFTH AVENUE.

FROM CORRESPONDENTS.

in helping him to more readily understand where to look for trouble or the cause of it when it occurs, and if the following experiences of mine are considered of value you can make use of them as you deem advisable.

Some time ago I secured a 5-horse power gasoline road wagon somewhat of the stan-hope type and at once put it in active operation. While thoroughly understanding the principle and construction of gasoline motors in general and automobiles also, there were a number of details to be learned regarding the combination as applied to the rig mentioned, especially when it was kept in constant use. My machine is fitted with a gang oiler which lubricates the cylinders when the engine is running, but stops when the engine stops. This has a regulator on each tube running to each cylinder and one of the first things to occur was, the cylinders got hot. Upon examination I found the regulators were not open quite far enough to allow sufficient oil to pass to the cylinders, they being gradually closed by vibration. The regulation necessary to accomplish this was but two or three turns, still these few turns meant all the difference between an easy and hard running motor. After this experience I watched this feature of the construction and have had no further bother.

I discovered at another time a leak in my water tank which caused such a loss of water that every 5 miles or so the tank had to be refilled, else the cylinders became so hot I could get no speed out of the motor. This I soon remedied although before having it fixed I carried extra cans of water to provide for emergencies.

Another thing that happened, and which I believe is worth calling attention to, was the failure of one of the intake valves to properly seat itself. It caused an hour's delay but was soon remedied. The valve springs were held in position by a cup-shaped disc over the top of which and through the valve stem ran a split pin, the ends being spread apart in order to prevent its working out. Vibration had caused one of the ends of the pin to break off and drop onto the valve and the suction had drawn it to the edge of the valve so it would not allow the latter to seat itself in order to hold compression, the result being an explosion through the intake pipe into the carbureter. I fixed the valve by removing the piece of wire and went on my way rejoicing only to have the same thing occur just on the center of the incline leading to the Washington street bridge, at a time when traffic was heavy, about 5 p. m.

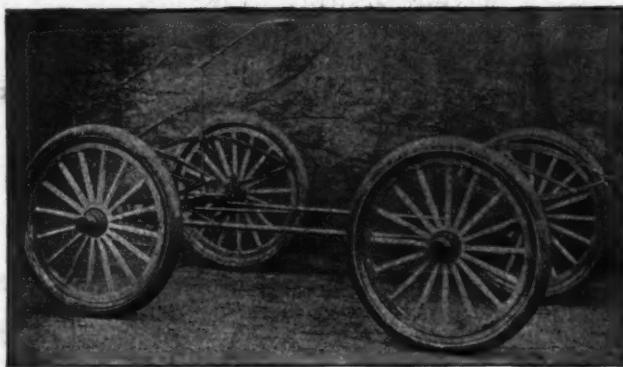
Having had a similar experience, it took but a few minutes to remove the obstruction which, in this instance, was the remaining end of the split pin, and resume my journey, after having used a piece of copper wire to remedy the loss of the pin. These split pins are a weak point, in the writer's estimation, and should be done away with entirely.

Another thing, and one which, owing to the structural features of the carriage, was a harder problem to overcome, occurred while driving through Jackson park one day in company with a number of friends. We were running along on the fastest speed when of a sudden one cylinder stopped working. After an hour's time spent in going over the whole machine, I accidentally touched a wire which ran from the coil to the make-and-break apparatus and its giving easily under the touch caused me to investigate. The wire I found had broken close to the binding post on the back of the circuit breaker, but owing to the fact that it was attached to the rear and was so heavy that it remained in its position after breaking, it was one of the last things about the machine that would have caused me to think of possible trouble. The sparking apparatus has worked so perfectly in every respect that I look everywhere else than to it when occasion requires an investigation. The same day while going home after dark and while running fast so as to avoid policemen, owing to my being without lights, the same thing occurred, but my morning's experience told me where to look for the trouble and I found it in the dark and repaired it in less than 2 minutes.

The only other thing that has been located as a cause of partial stoppage of the working of the engine was the little cock I use to shut off the gasoline from the carbureter when the rig is stored for the night. The cock is under the dash and as I carry an oil can and small grip of tools there also, the vibration of the carriage sometimes shifts the positions of the different articles so they will come in contact with the lower side of the valve and gradually close it. As soon as it is sufficiently closed to shut down the oil supply, the engine begins to miss an explosion.

Experience has taught me many things that I cannot easily find words to explain, but which I instinctively know with regard to the running of my motor, and while I am picking up information of value to me every day, there are few things that could occur now that I could not locate without hesitation.—Yours, etc., D. J. Percy.

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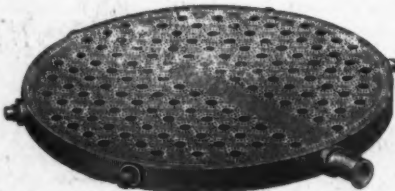
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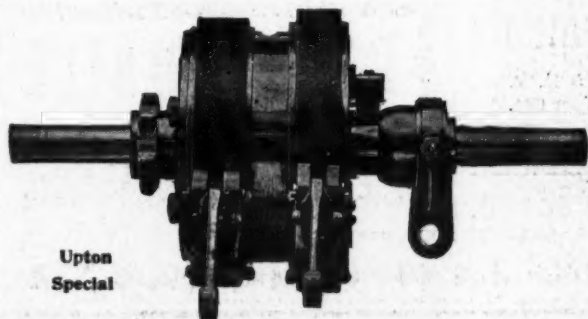
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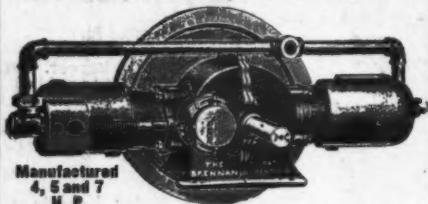
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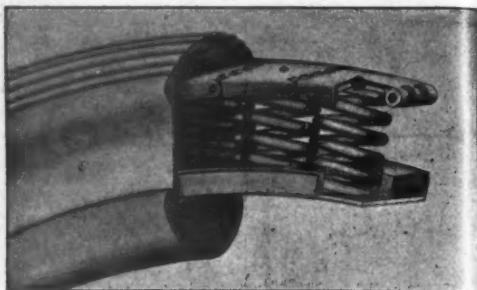
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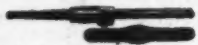
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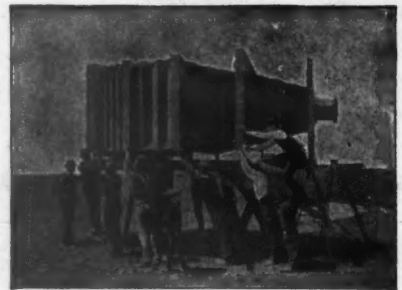
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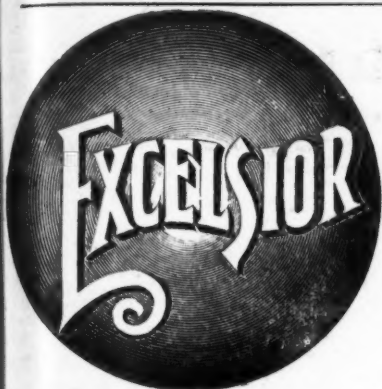
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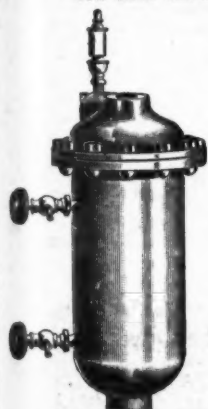
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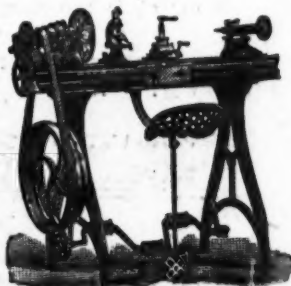
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